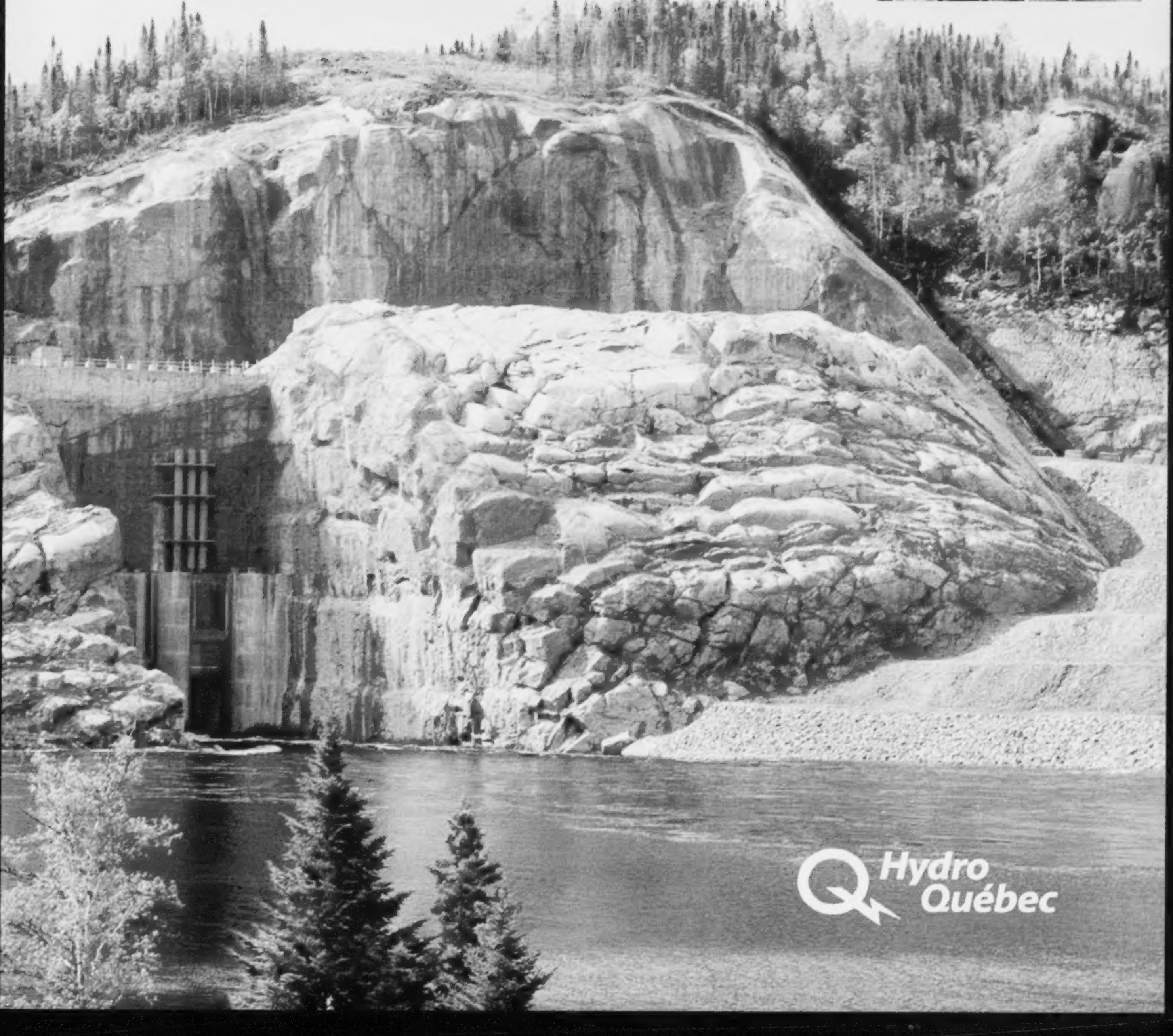
# HYDRO-QUÉBEC

# ANNUAL REPORT 2011



# HYDRO-QUÉBEC

Hydro-Québec generates, transmits and distributes electricity. Its sole shareholder is the Québec government. It uses mainly renewable generating options, in particular large hydro, and supports the development of other technologies—such as wind energy, biomass and small hydro—through purchases from independent power producers. It also conducts R&D in energy-related fields, including energy efficiency. The company has four divisions:

**HYDRO-QUÉBEC PRODUCTION**
generates power for the Québec market and sells its surpluses on wholesale markets. It is also active in arbitraging and purchase/resale transactions.

**HYDRO-QUÉBEC TRANSÉNERGIE**
operates the most extensive transmission system in North America for the benefit of customers inside and outside Québec.

**HYDRO-QUÉBEC DISTRIBUTION**
provides Quebecers with a reliable supply of electricity. To meet needs beyond the annual heritage pool, which Hydro-Québec Production is obligated to supply at a fixed price, it mainly uses a tendering process. It also encourages its customers to make efficient use of electricity.

**HYDRO-QUÉBEC ÉQUIPEMENT ET SERVICES PARTAGÉS**
and Société d'énergie de la Baie James (SEBJ), a subsidiary of Hydro-Québec, design, build and refurbish generating and transmission facilities, mainly for Hydro-Québec Production and Hydro-Québec TransÉnergie.

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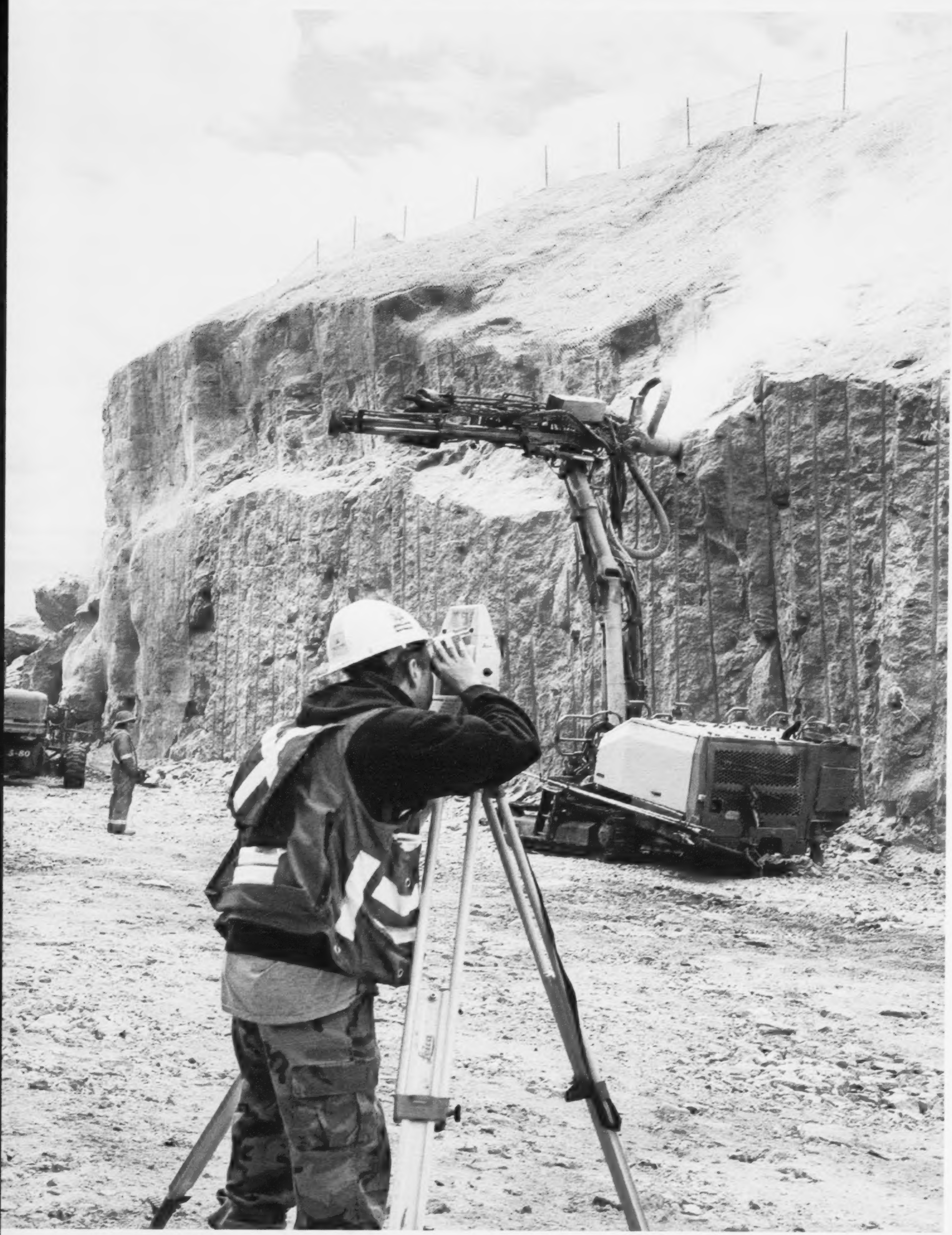
**On the cover**
Romaine-2 jobsite: Upstream portal of the temporary bypass tunnel, which diverts water from the river while the dam is being built.

**Opposite**
Maxime Servant, surveyor, working at the Romaine-2 spillway site.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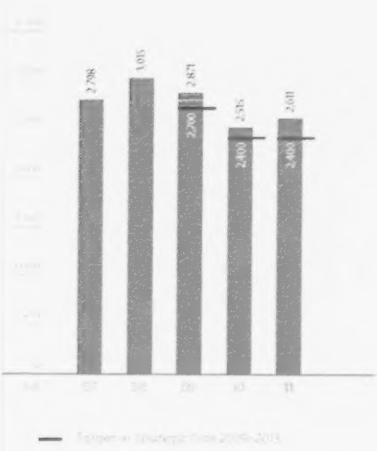
# HYDRO-QUÉBEC AT A GLANCE

Note: Certain comparative figures have been reclassified to conform to the presentation adopted in the current year.

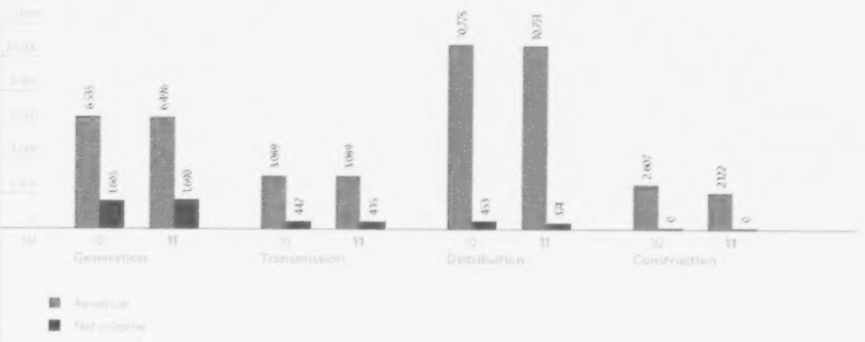
| | 2011 | 2010 |
|---|---|---|
| **Operations and Dividend ($M)** | | |
| Revenue | **12,392** | 12,484 |
| Operating income | **5,108** | 5,041 |
| Net income | **2,611** | 2,515 |
| Dividend | **1,958** | 1,886 |
| **Balance Sheets ($M)** | | |
| Total assets | **69,637** | 65,809 |
| Property, plant and equipment | **56,901** | 55,537 |
| Long-term debt, including current portion and perpetual debt | **42,050** | 38,660 |
| Equity | **18,834** | 18,566 |
| **Cash Flows ($M)** | | |
| Operating activities | **5,203** | 4,639 |
| Investing activities | **(3,435)** | (3,302) |
| Financing activities | **(475)** | (1,725) |
| Cash and cash equivalents | **1,377** | 80 |
| **Financial Ratios** | | |
| Interest coverage | **1.99** | 1.92 |
| Return on equity (%) | **14.0** | 14.0 |
| Profit margin (%) | **21.1** | 20.1 |
| Capitalization (%) | **31.0** | 32.1 |
| Self-financing (%) | **47.6** | 46.8 |

## NET INCOME

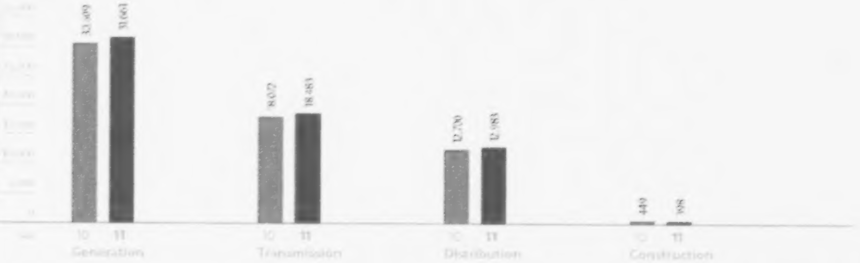


Hydro-Québec earned net income of $2,611 million in 2011, exceeding the $2,400-million target in the *Strategic Plan 2009–2013*. A number of factors account for this good performance. Net electricity exports by Hydro-Québec Production increased, despite the appreciation of the Canadian dollar and lower prices on energy markets in northeastern North America. Electricity sales in Québec increased due to higher demand, mainly in the residential sector. Finally, strict management enabled the company not only to absorb the impact of inflation, indexing and growth in activities, but also to reduce operating expenses.

## REVENUE AND NET INCOME BY SEGMENT



## TOTAL ASSETS BY SEGMENT



| | 2011 | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|
| **Customers and Sales** | | | | | |
| Total customer accounts in Québec | **4,060,195** | 4,011,789 | 3,960,332 | 3,913,444 | 3,868,972 |
| Electricity sales in Québec (TWh) | **170.0** | 169.5 | 165.3 | 170.4 | 173.2 |
| Electricity sales outside Québec (TWh) | **26.8** | 23.3 | 23.4 | 21.3 | 19.6 |
| **Workforce as at December 31**[a] | **22,501** | 23,092 | 23,090 | 22,916 | 23,069 |
| **Facilities** | | | | | |
| Number of hydroelectric generating stations | **60** | 60 | 60 | 59 | 57 |
| Total installed capacity (MW)[b] | **36,971** | 36,671 | 36,813 | 36,432 | 35,654 |
| Peak power demand in Québec (MW)[c] | **35,481** | 37,717 | 34,659 | 37,230 | 35,352 |
| Lines (overhead and underground) | | | | | |
| Transmission (km) | **33,630** | 33,453 | 33,244 | 33,058 | 33,008 |
| Distribution (km)[d] | **113,525** | 112,089 | 111,205 | 110,127 | 109,618 |
| Number of substations | **514** | 514 | 515 | 510 | 509 |
| **Power Generation and Purchases** | | | | | |
| Renewables (GWh)[e] | **200,764** | 192,321 | 196,633 | 200,109 | 194,154 |
| All generating sources (GWh) | **207,693** | 203,842 | 203,181 | 206,603 | 208,156 |
| Proportion of renewables (%) | **97** | 94 | 97 | 97 | 93 |

a) Excluding employees of subsidiaries and joint ventures.

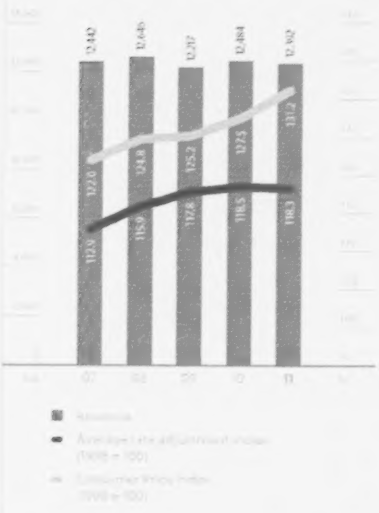
b) In addition to the generating capacity of its own facilities, Hydro-Québec has access to almost all the output from Churchill Falls generating station (5,428 MW) under a contract with Churchill Falls (Labrador) Corporation Limited that will remain in effect until 2041. It also purchases all the output from 12 wind farms (919 MW) and 3 small hydropower plants (23 MW) operated by independent power producers. Moreover, 1,215 MW are available under long-term contracts with other suppliers.

c) Total power demand at the annual domestic peak for the winter beginning in December, including interruptible power. The 2011–2012 winter peak occurred at 8:00 a.m. on January 16, 2012.

d) These figures include off-grid systems but exclude private systems, lines under construction and 44-kV lines (transmission).

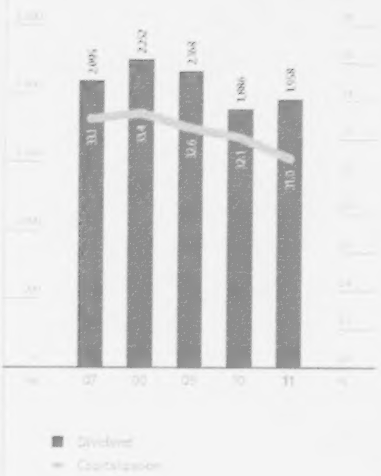
e) Excluding wind energy purchases for which renewable energy certificates were sold to third parties.

**REVENUE, AVERAGE RATE ADJUSTMENT INDEX AND CONSUMER PRICE INDEX**



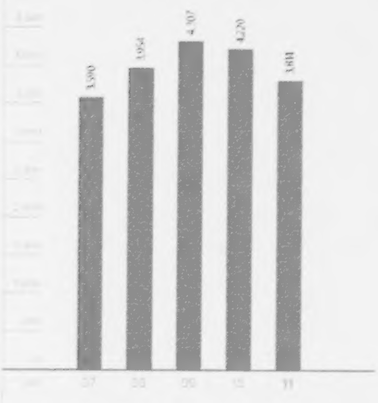
Revenue totaled $12,392 million, a $92-million decrease from the $12,484 million recorded in 2010. Revenue from electricity sales amounted to $12,119 million, compared to $12,019 million in 2010: it increased by $214 million in Québec and decreased by $114 million outside Québec. Other revenue was $273 million, compared to $465 million in 2010.

**DIVIDEND AND CAPITALIZATION**



The dividend for 2011 amounts to $1,958 million.

**INVESTMENTS IN PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS**[a]



a) Including the Energy Efficiency Plan.

Cash from operating activities totaled $5.2 billion in 2011. This cash allowed the company, among other things, to pay the 2010 dividend of $1,886 million and to finance a large portion of its investment program ($3.8 billion).

## MESSAGE FROM THE CHAIRMAN OF THE BOARD

# A Remarkable Year

*"One of the key factors in Hydro-Québec's solid performance is the exemplary care it takes in management."*

Hydro-Québec posted a remarkable performance in 2011 on many levels. Noteworthy first of all is the company's continued efficient management of its many construction and refurbishment sites throughout Québec, including the Romaine project. All these undertakings, combined with a sustained innovation effort in all our core businesses, will enable us not only to preserve our heritage and optimize the value derived from it, but to pave the way for an increasingly sustainable energy future as well.

Hydro-Québec's financial performance is also praiseworthy. Once again this year, the company's capital program, operating activities and innovation projects generated sizable spinoffs for the province as a whole and for its regions. The year also yielded a very positive bottom line that attests to careful management. In this regard, Hydro-Québec is fortunate to be able to count on a seasoned management team and high-calibre employees.

In addition to its Chairman and the President and Chief Executive Officer, the Board currently comprises 14 members with diverse backgrounds, who are active on seven committees. The directors exercise a wide range of responsibilities, such as advising Management in the development and implementation of corporate strategic objectives, ensuring sound management and profitability, approving major infrastructure projects and seeing that they are completed on budget and in compliance with the company's sustainable development objectives. In 2011, the Board reviewed numerous capital projects in generation, transmission and distribution.

I wish to express my gratitude to all the directors for their dedicated participation in the Board's activities, and in particular to Bernard Gaudreault and Gilles Vaillancourt, who left the Board during the year. I would also like to take this opportunity to welcome two new members, Isabelle Hudon and Martine Rioux. Finally, I must congratulate Management and thank all the employees for their vital contribution to Hydro-Québec's success.

**Michael L. Turcotte**
Chairman of the Board

MESSAGE FROM
THE PRESIDENT
AND CHIEF
EXECUTIVE
OFFICER

# Steady Progress

In 2011, Hydro-Québec succeeded in increasing its profitability in spite of difficult business conditions. Net income totaled $2,611 million, up nearly $100 million from 2010. As a result of this performance, which was well in excess of the projections in the *Strategic Plan 2009–2013*, we will be able to pay a dividend of almost $2 billion to our shareholder, the Québec government.

In Québec, our customers benefited from a 0.41% rate cut and sales rose by $214 million. This increase is explained mainly by near-normal winter temperatures, compared with the very mild winter we saw in 2010.

Net electricity exports grew by $100 million, despite the decline in energy prices on markets in northeastern North America and the appreciation of the Canadian dollar. The price of natural gas, and hence of electricity, fell as a result of the sharp increase in U.S. shale gas production. The rise of the Canadian dollar heightened this effect. However, because precipitation levels were normal across our hydroelectric generating fleet, we were able to increase the volume of our net sales outside Québec. In contrast, 2010 was marked by precipitation well below the historic mean, which severely limited the volume of our net exports.

At the operational level, we made new efficiency gains in 2011. This sustained improvement allowed us both to absorb cost increases stemming from inflation, salary indexation and growth of our operating assets, and to reduce our current operating expenses by $89 million. We are very proud of this strong performance—the product of careful management and the commitment of all our employees.

## TAPPING QUÉBEC'S HYDROPOWER POTENTIAL

One of Hydro-Québec's primary missions is to create value from the province's hydroelectric resources. Highlights of 2011 included the commissioning of two generating units at Eastmain-1-A powerhouse, followed by the third unit in January 2012. Also in the 918-MW Eastmain-1-A/Sarcelle/Rupert development, the three units at Sarcelle powerhouse will come on stream in 2012, as scheduled. This $5-billion project, now nearing completion, has been a great success for all our teams and their outside partners. We are also proud that, in its 12th global inventory of electricity production from renewable sources, the Observatoire des énergies renouvelables (Observ'ER) cited the Eastmain-1-A/Sarcelle/Rupert project as "a prime example of how to incorporate environmental constraints." This recognition underscores Hydro-Québec's expertise and know-how in designing and building large hydropower developments. It also confirms the vital role played by large hydro as a sustainable energy source. At the Romaine complex, and on the Romaine-2 site in particular, work proceeded as planned. This $6.5-billion project calls for the construction of four generating stations with a combined installed capacity of 1,550 MW.

## DEVELOPING THE TRANSMISSION SYSTEM

In 2011, we invested $1.3 billion in expanding our transmission system—the most extensive in North America—and ensuring its reliability and long-term operability. This investment effort, unprecedented in the history of Hydro-Québec TransÉnergie since its establishment in 1997, is intended to meet a number of needs: native-load growth, integration of new wind farm and hydropower output, refurbishment and modernization of assets, and compliance with standards and regulatory requirements.

## ADVANCED METERING INFRASTRUCTURE

The advent of smart grids will bring about major changes in electricity distribution. With that in mind, we plan to deploy 3.8 million next generation meters to replace electromechanical devices that are reaching the end of their useful lives. These "smart" meters are a key component in an advanced metering infrastructure that will allow various operations to be performed remotely, such as extremely precise automated reading of power consumption, disconnection and connection when customers move, outage detection, and restoration of service. Safe and secure in every way, this technology will also yield substantial savings for our customers. In phase one, we installed 20,000 meters. Before moving on to phase two, we are awaiting the results of a public hearing and a decision by the Régie de l'énergie, expected in 2012.

## RENEWABLE SUPPLIES

We launched a 150-MW power purchase program in 2011 for electricity produced by forest biomass cogeneration in Québec. This initiative is in line with the *Québec Energy Strategy 2006–2015* and with the renewable energy requirements of the Plan Nord. In addition, we finished connecting all the wind farms built in response to our 2003 call for 1,000 MW of wind power.

## PARTICIPATING IN GROUND TRANSPORTATION ELECTRIFICATION

In 2011, we intensified our efforts to advance electric mobility. For example, we formed a partnership with the Agence métropolitaine de transport and three major Québec retailers with a view to deploying Canada's first public charging network, called The Electric Circuit. We will install about a hundred charging stations in metropolitan Québec and Montréal to begin with, and then step up the pace depending on the rate at which electric vehicles arrive on the Québec market. In a related area, our R&D initiatives pertaining to electric vehicles generated $26 million in revenue through the sale of sublicences for the use of lithium metal phosphates in the manufacture of rechargeable batteries.

## AN ESSENTIAL CONTRIBUTION

Our solid performance in 2011 is directly attributable to the commitment of the energetic women and men who work for Hydro-Québec or its partners. Because of them, we are able to offer reliable, affordable electricity all over the province, while maintaining strong profitability that benefits Québec as a whole. I thank them with all my heart.

I also extend my appreciation to the members of the Board of Directors for their invaluable contribution to Hydro-Québec's performance.

**Thierry Vandal**
President and Chief Executive Officer

*"As in past years, our employees played a leading role in our success in 2011."*

# HYDRO-QUÉBEC PRODUCTION

**Richard Cacchione**

President,
Hydro-Québec Production

▶ Shawinigan-2 generating station, which celebrated its centenary in 2011, has five horizontal-axis units.

**OUR MISSION** Hydro-Québec Production generates electricity to supply the domestic market and sells its excess output on wholesale markets. We also offer services to Hydro-Québec Distribution to offset variations in wind farm output and thereby facilitate the integration of this energy source.

**OUR FACILITIES** Our generating fleet comprises 59 hydroelectric generating stations, 1 nuclear generating station and 3 thermal generating stations, representing assets worth $26.3 billion and installed capacity of 36.8 GW. Our hydroelectric fleet also includes 26 large reservoirs with a combined storage capacity of 175 TWh, as well as 579 dams and 97 control structures.

**OUR ACTIVITIES** We supply Hydro-Québec Distribution with an annual maximum volume of 165 TWh of heritage pool electricity. Above that volume, we sell our output in Québec, in response to tender calls by Hydro-Québec Distribution, and outside Québec, on wholesale markets in northeastern North America.

| **2011 IN FIGURES** | |
|---|---|
| Revenue | **$6.5 billion** |
| Net income | **$1.7 billion** |
| Customers<br>(% of revenue from electricity sales) | |
| *Hydro-Québec Distribution* | **77%** |
| *Other* | **23%** |
| Sales volume | |
| *Hydro-Québec Distribution* | **168.6 TWh** |
| *Other* | **27.4 TWh** |
| Property, plant and equipment as at December 31<br>(including work in progress) | **$30.0 billion** |
| Investments in property, plant and equipment and intangible assets | **$1.5 billion** |

# Hydropower: A Renewable Energy Source

Through rigorous management and despite difficult market conditions, Hydro-Québec Production achieved excellent results in 2011. The division posted net income of $1,690 million, compared to $1,605 million in 2010. Furthermore, while maintaining reservoir storage of 102.8 TWh (as at December 31, 2011), we recorded net electricity exports of $1,134 million (20.8 TWh). We also paid $598 million in water-power royalties, compared with $561 million the previous year. This solid performance demonstrates the skill and commitment of our entire workforce.

The development of Québec's hydroelectric potential entered a new phase in 2011 with the commissioning of two generating units at Eastmain-1-A powerhouse, followed by the third and final unit in January 2012. Construction at the Sarcelle and Romaine jobsites proceeded at a steady pace. In addition to these major infrastructure projects, we carried out various refurbishments to ensure the long-time operability of our generating fleet and improve its efficiency. It is worth noting that we celebrated the centenary of Shawinigan-2 generating station in 2011 — a testament to our facilities' long service life.

As part of its contribution to implementing the Plan Nord, Hydro-Québec Production will develop a new portfolio of hydropower projects in step with the industrial development that will result from the Plan. We are already studying several projects in this regard. The new portfolio will add to what is provided for in the Québec Energy Strategy.

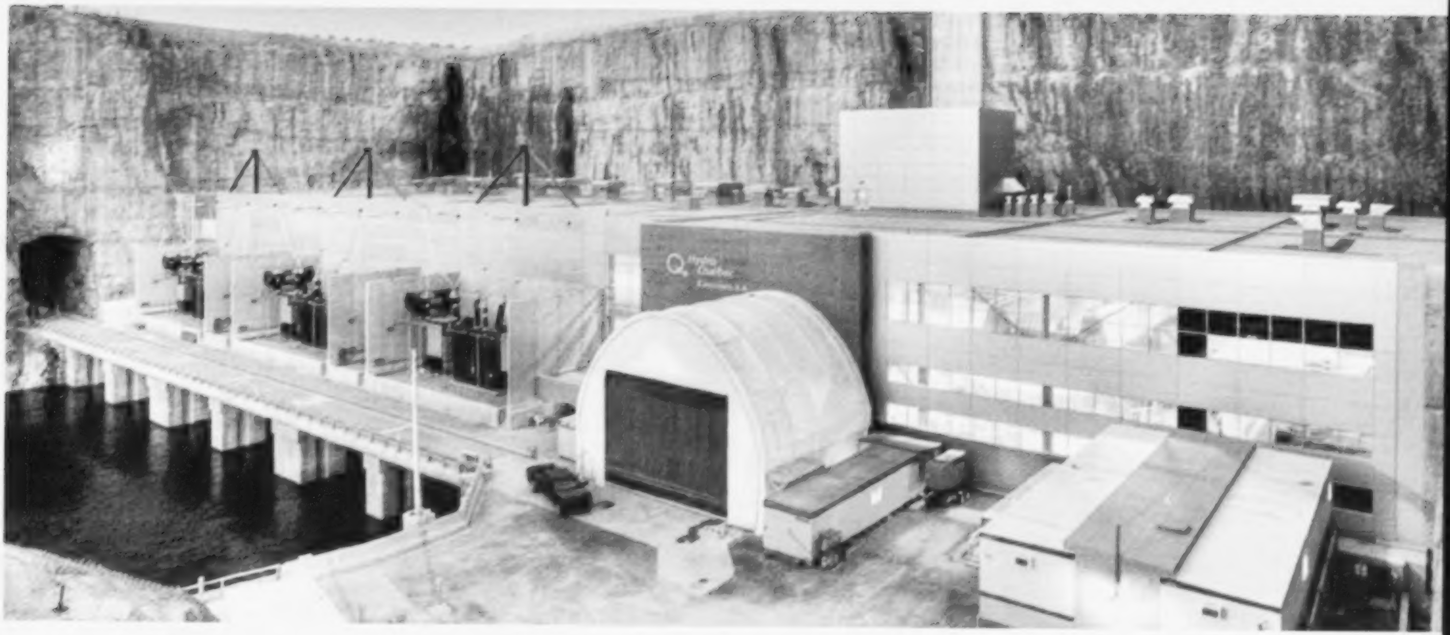
## CREATING VALUE FROM HYDROELECTRIC RESOURCES

*Hydro-Québec Production manages its generating fleet with two major goals in mind: ensure the security of Québec's electricity supply and maximize the profitability of its operations. Because of the operating flexibility afforded by large hydropower, the division is able to meet Québec demand while optimizing its electricity exports. Thanks to their huge storage capacity and the fact that they can be started up in a matter of minutes, our reservoir generating stations allow us to adjust output not only to domestic demand but also to conditions on outside markets. Hence, we import electricity when prices are low and export it when prices are higher.*

> *The Romaine and Eastmain-1-A/Sarcelle/Rupert projects are currently among the largest construction sites in Canada.*

- Electricity sales to Hydro-Québec Distribution totaled 168.6 TWh in 2011, compared with 167.6 TWh in 2010. Heritage pool sales generated net income of $1,155 million. Other deliveries and business transactions yielded net income of $137 million.
- Electricity sales outside Québec brought in $1,397 million for 26.7 TWh, versus $1,513 million for 23.3 TWh in 2010. The decrease in export sales revenue is due to market conditions and the appreciation of the Canadian dollar. Net exports amounted to $1,134 million for net reservoir drawdown of 20.8 TWh, compared with $1,034 million and net drawdown of 12.6 TWh in 2010, yielding net income of $398 million in 2011.

▲ Commercial delegates at work on Hydro-Québec Production's energy trading floor

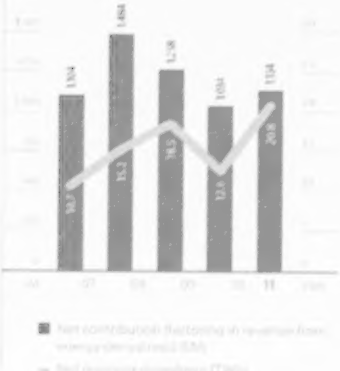


▲ Two of the three generating units at Eastmain-1-A powerhouse were commissioned in 2011. The last unit went into service in January 2012.

■ Hydro-Québec Production is continuing discussions with regard to its potential participation in an underground and underwater transmission line project between Québec and the State of New York. This $1.9 billion project would give us access to new markets.

■ We operate our facilities in such a way as to maintain a sufficient energy reserve at all times to offset a potential runoff deficit equivalent to 64 TWh over two consecutive years and 98 TWh over four consecutive years. We also keep a capacity reserve approximately 8% higher than our contractual commitments, in accordance with the industry's reliability criteria.

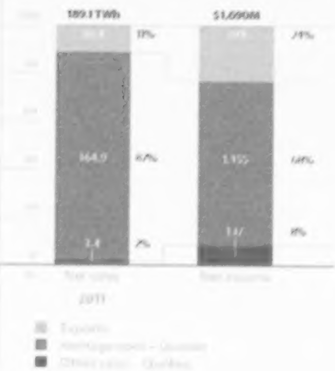
**NET ELECTRICITY EXPORTS BY HYDRO-QUÉBEC PRODUCTION**



## DEVELOPING MEANS OF GENERATION

*The development of Québec's hydroelectric potential is based on three fundamental criteria: projects must be profitable, environmentally acceptable and favorably received by the host communities. Since 2004, Hydro-Québec Production has increased its generating capability with the inauguration of several facilities, including Sainte-Marguerite-3, Rocher-de-Grand-Mère, Toulnustouc, Eastmain-1, Mercier, Péribonka, Chute-Allard, Rapides-des-Cœurs and Eastmain-1-A generating stations, as well as the Rupert diversion.*

**NET ELECTRICITY SALES AND NET INCOME OF HYDRO-QUÉBEC PRODUCTION, BY MARKET**



*In 2011, net electricity exports by Hydro-Québec Production accounted for 11% of net sales volume. They generated 24% of the division's net income and 15% of the company's net income.*

■ In the Baie-James region, two of the three generating units at Eastmain-1-A powerhouse were commissioned in 2011, followed by the third in January 2012. Commissioning of the three generating units at Sarcelle powerhouse is slated for 2012. The $5.0 billion Eastmain-1-A/Sarcelle/Rupert project will add 918 MW in installed capacity and 8.7 TWh in annual output, including additional output (5.3 TWh) as a result of diverting part of the Rupert's flow to existing generating stations in the La Grande complex.

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- At the Romaine jobsite, in the Minganie region, work on the Romaine-2 development is moving ahead as scheduled. The $6.5-billion Romaine project calls for the construction of four generating stations with a total capacity of 1,550 MW and annual output of 8.0 TWh on the Rivière Romaine, north of Havre-Saint-Pierre. The facilities will be commissioned in phases between 2014 and 2020.
- With regard to the Petit-Mécatina project in the Basse-Côte-Nord region, we are still planning to sign partnering agreements with the communities concerned, with a view to continuing the draft-design studies launched in 2009. This project involves the construction of two generating stations with a combined capacity of 1,200 MW.

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**1.** Renovation of buildings at Rivière-des-Prairies generating station continued in 2011.

**2.** Applying a metallizing process to a servomotor at Shawinigan-3 generating station.

**3.** At Shawinigan-3 generating station, François Tremblay, chief powerhouse mechanic, and Mathieu Trépanier, powerhouse mechanic, replace the coolers on a generating unit.

▲ The storage capacity of reservoir generating stations allows Hydro-Québec to adjust output on the basis of domestic demand and prices on outside markets.

*In 2011, the average cost of a kilowatthour was 2.11¢. This corresponds to the sum of our generating, procurement and sales costs divided by the net sales volume.*

*We use water to generate 98% of our output.*

## OUR GENERATING FLEET: A LONG-LASTING ASSET

*Hydro-Québec Production does everything it can to ensure the long-term operability of its facilities and improve their efficiency. Highly qualified employees regularly assess the performance and condition of facilities so as to identify and prioritize the actions to be taken. In 2011, $516 million was invested in the refurbishment and refitting of generating stations.*

- In the Nord-du-Québec region, unit overhaul at Robert-Bourassa generating station got under way. During the first phase, we plan to replace the speed governors, the excitation and control systems, and some turbine runners.
- In the Manicouagan region, the overhaul of a generating unit at the Jean-Lesage facility (formerly Manic-2) is moving ahead as planned, with commissioning slated for 2013. This project will yield approximately 30 MW of additional capacity. In addition, the auxiliary equipment at Manic-1 is undergoing a major overhaul to ensure its long-term reliability.
- In the Montérégie region, the overhaul of six units at Beauharnois generating station is proceeding on schedule. This large-scale project will prolong the facility's service life and increase its annual output considerably.
- In Montréal, renovation of the buildings at Rivière-des-Prairies generating station is continuing.
- In Abitibi-Témiscamingue, the refitting of Rapide-2 and Rapide-7 generating stations continued. Replacement of turbine runners and some mechanical components should yield about 12 MW of additional capacity for each facility.
- We completed the rehabilitation of Bourque dam (Abitibi-Témiscamingue). Work continued at Melville dam (Mauricie), Coteau-1, Coteau-3, Île-Juillet-1 and Île-Juillet-2 dams (Montérégie) and La Tuque dam (Mauricie). Rehabilitation started on Gouin dam (Mauricie).
- Gentilly-2 nuclear generating station's operating licence was renewed until June 2016. This confirms that our operating methods comply with rigorous safety standards. Preparatory activities for the Gentilly-2 refurbishment project are continuing. The Québec government should announce its decision concerning the future of Gentilly-2 in 2012.

## INNOVATING TO MAXIMIZE OUTPUT

*Most of our technological innovation work is intended to improve the performance of our generating facilities, with a view to sustainable development. Conducted in collaboration with Hydro-Québec's research institute, industry partners and university researchers, the work performed in 2011 was part of a portfolio of 25 projects with a total value of nearly $21 million.*

- We continued to develop various tools aimed at optimizing our operating and maintenance activities. For example:
  - ☐ AUPALE project (generator uprating): multiphysical modeling (electromagnetic, thermal, mechanical and fluid) of generator response in order to increase capacity without compromising service life.
  - ☐ PREDDIT project (turbine damage prediction and integrated diagnostics): development of tools for diagnostic tests on turbines (cracking, cavitation and corrosion) and of optimized runner repair and welding methods. This project

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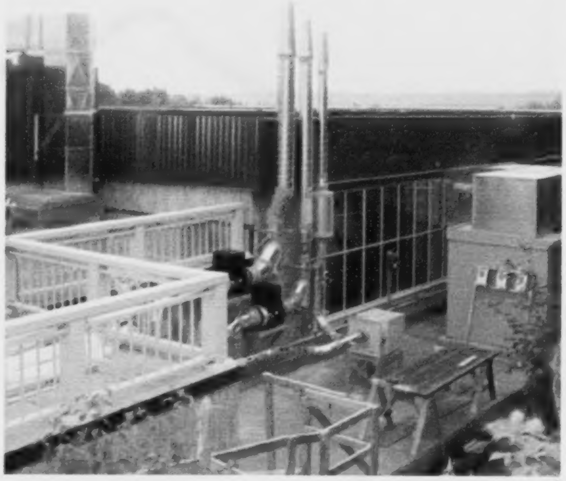

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will allow us to reduce the number of unscheduled shutdowns and to plan refurbishment and refitting projects according to actual turbine condition. ■ At the same time, we developed an algorithm to improve the accuracy of our natural inflow forecasts, which will help to increase our facilities' efficiency.

*The 63 generating stations operated by Hydro-Québec Production have a total installed capacity of 36.8 GW.*

*Continued development of hydropower — a clean, renewable energy source — will allow Hydro-Québec to meet future generations' energy needs.*

**1.** Engineers Patrick Guillot and Dany Lafontaine, accompanied by chief technician Éric Marier, take part in the annual inspection of Coteau-2 dam.

**2.** Installing stoplogs below unit No. 25 at Beauharnois generating station.

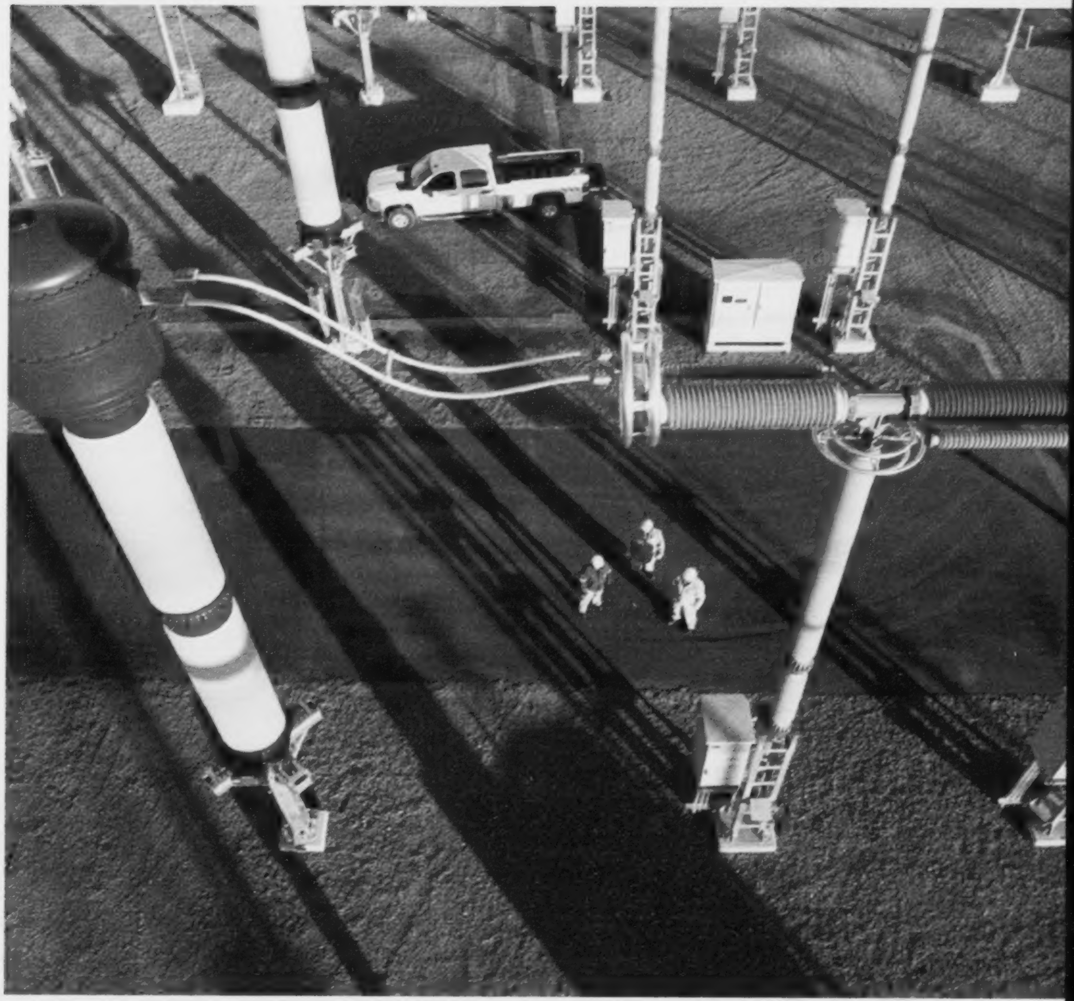
**3.** Repairs were made to the spillway deck of La Tuque generating station.

**4.** A new air-conditioning and ventilation system was installed at Manic-1 generating station.

# HYDRO-QUÉBEC TRANSÉNERGIE

**André Boulanger**

President,
Hydro-Québec TransÉnergie



▶ Static var compensators were added at Chenier substation as part of a project to increase capacity and improve power quality on the main transmission system.

**OUR MISSION** Hydro-Québec TransÉnergie operates the most extensive transmission system in North America, marketing system capacity and managing power flows across Québec. Our Direction Contrôle des mouvements d'énergie acts as Reliability Coordinator for transmission systems in Québec.

**OUR FACILITIES** Our system comprises 33,630 km of lines and 514 substations, including interconnections that allow power interchanges with grids in the Atlantic provinces, Ontario and the U.S. Northeast. Our tariff, approved by the Régie de l'énergie, ensures non-discriminatory access to our system in compliance with North American regulatory requirements.

**OUR ACTIVITIES** To meet evolving customer needs and ensure high-quality transmission service, Hydro-Québec TransÉnergie works diligently to ensure the development, reliability and long-term operability of its system. With a view to continuously improving its performance, the division also focuses particular attention on developing its expertise.

| **2011 IN FIGURES** | |
|---|---|
| Revenue | **$3.1 billion** |
| Net income | **$435 million** |
| Customers (% of revenue) | |
| *Hydro-Québec Distribution* | |
| (native-load transmission service) | **84%** |
| *North American wholesalers* | |
| (point-to-point transmission services) | **12%** |
| *Other* | **4%** |
| Property, plant and equipment as at December 31 | |
| (including work in progress) | **$17.6 billion** |
| Investments in property, plant and equipment and intangible assets | **$1.3 billion** |

# A Global Reputation

In 2011, Hydro-Québec TransÉnergie devoted $1.3 billion to system expansion, reliability and long-term operability. This effort is part of an ambitious capital program—$5.7 billion in the last five years—intended to thoroughly transform the grid. The results are crystal clear: once again, our system posted excellent performance in terms of service continuity, confirming the reputation for quality enjoyed by the Québec transmission grid.

We are moving toward an increasingly automated, smart grid. Among other improvements, the integration of digital technologies and advanced protections and controls increases remote maintenance capabilities. This means that the system will eventually be able to prevent and detect disturbances, perform complex functions and interact with customers. That is the thinking behind projects such as the ACOR grid response improvement program, which uses automation to increase facility capacity, reliability and security.

With the steadfast support of our skilled, highly motivated employees, we are able to plan our capital projects with a great deal of care and attention so as to facilitate the consultation and approval processes.

## A RAPIDLY EXPANDING GRID

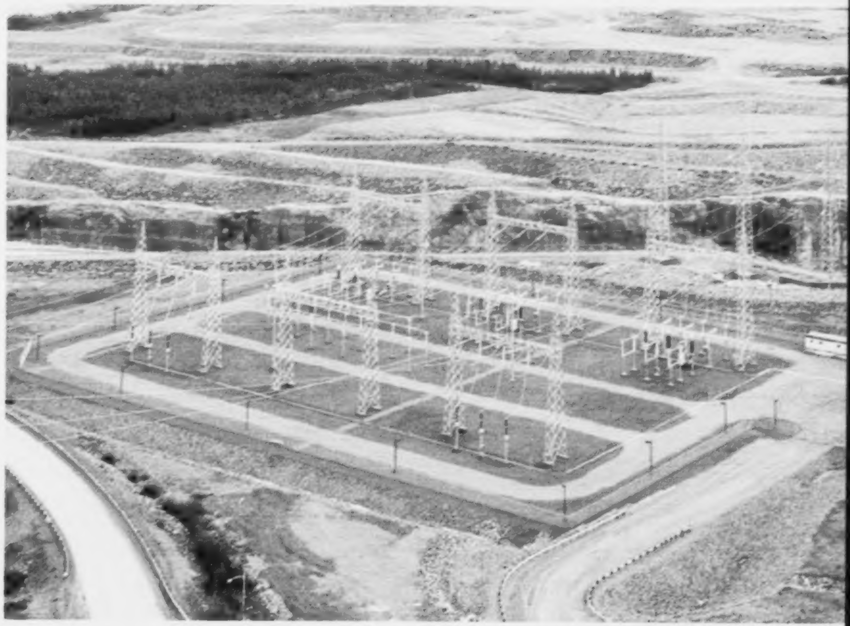
*In 2011, we invested $460 million in system development to meet growing transmission demand. In concrete terms, we extended and reinforced our facilities to integrate new hydropower and wind capacity, carry larger volumes of electricity on some transmission lines and improve security of supply to certain regions. Among other initiatives, we launched a project to expand the transmission system in the Minganie region in preparation for bringing the Romaine complex onto the grid. This $1.8-billion project involves building five substations and about 500 km of lines, which will be commissioned in stages until 2020.*

> *On January 16, 2012, at 8:00 a.m., the transmission system load reached 35,481 MW.*

- In the Baie-James region, construction came to a close on the two substations and 103 km of 315-kV lines needed to integrate the output from Eastmain-1-A and Sarcelle powerhouses. These facilities are scheduled to be fully operational in 2012.
- In the same region, we completed and commissioned Waconichi substation (161/25 kV) and the 46-km, 161-kV line linking the Cree community of Mistissini to the main transmission system.
- In Minganie, clearing began in preparation for a 735-kV line that will connect Romaine-2 generating station to Arnaud substation. Scheduled completion: 2014.

▲ Guy Bergeron, operator at the system control centre.

▲ At the Québec telecontrol centre, dispatcher Réjean Pressé communicates with the system control centre in Montréal.



► Switchyard at Eastmain-1-A powerhouse.

- Mont-Louis, Gros-Morne and Montagne-Sèche wind farms, in the Gaspésie region, are now connected, concluding all the connection projects associated with Hydro-Québec Distribution's 2003 call for 1,000 MW of wind power.
- We brought Le Plateau wind farm (Gaspésie) onto the grid and broke ground on the 30-km, 315-kV line that will connect Lac-Alfred wind farm (Bas-Saint-Laurent) as of 2013. These were the first stages in the project to integrate 2,000 MW of wind capacity contracted for by the Distributor further to a tender call issued in 2005.
- We finished building the 31-km, 120-kV Beauceville–Sainte-Marie line and put it into operation (Chaudière-Appalaches).
- In Montréal, some 120-kV underground lines between Mont-Royal and Laurent substations and between Berri and Notre-Dame substations were completed and commissioned.
- The Régie de l'énergie approved nine major Hydro-Québec TransÉnergie infrastructure projects in 2011, worth $2.8 billion altogether:
  - Extension of the Minganie transmission system to connect the 1,550-MW Romaine complex. Cost: $1.8 billion. Scheduled completion: 2020.
  - A $51 million project to build Lachenaie substation (315/25 kV) north of Montréal and connect it temporarily by looping an existing 315-kV circuit, so as to meet growing demand in the Mille-Îles-Est–Lanaudière area. Scheduled completion: 2013.
  - A 315/120/25-kV substation to replace 120/12-kV Bélanger substation, a 315-kV tap line for this facility and various modifications to Duvernay (735/315/120 kV), Montréal-Nord (120/12 kV) and Bout-de-l'Île (735/315/120 kV) substations. Cost: $190 million. Scheduled completion: 2014.
  - An $87 million project to build Pierre-Le Gardeur substation (315/120 kV) in order to meet regional load growth. Scheduled completion: 2014.
  - Adding and modifying equipment on the 315-kV transmission system in the Québec–Montréal corridor with a view to separating this infrastructure from the 735-kV grid and reorganizing it to ensure sustainable, optimal development of the transmission system serving the northeast Montréal metropolitan region. Cost: $309 million. Scheduled completion: 2014.

*Hydro-Québec TransÉnergie is a world benchmark in the design, operation, maintenance and simulation of large power grids.*

*We are evolving toward a smart grid that will be able to handle intermittent energy sources such as wind and solar power, and new uses such as electric mobility.*

INVESTMENTS IN THE TRANSMISSION SYSTEM ($M)

| | **2011** | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|
| System growth | **460** | 423 | 493 | 559 | 349 |
| Asset sustainment (reliability and long-term operability) | **832** | 825 | 703 | 540 | 497 |
| Total | **1,292** | 1,248 | 1,196 | 1,099 | 846 |

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□ Construction of Charlesbourg substation (230/25 kV), at a cost of $94 million. Objective: keep pace with load growth on the grid that supplies the city of Québec metropolitan community. Scheduled completion: 2014.

□ Replacement of two voltage step up transformers at Manic 2 substation. Cost: $30 million. Scheduled completion: 2014.

□ Reinforcement of the 230-kV and 120-kV transmission grid supplying Bécancour industrial park. Cost: $100 million. Scheduled completion: 2013.

□ A $103-million project to build a new 315/25-kV substation to replace the existing 120/12-kV Henri-Bourassa substation. This project is part of the plan to develop the transmission system serving the northeast Montréal metropolitan region. Scheduled completion: 2014.

■ In February 2012, the Régie authorized the 2012 budget for individual projects costing less than $25 million. Totaling $564 million, this budget is used to maintain our assets, improve the quality of service, meet legal and regulatory requirements, and respond to growing needs.

## ASSET SUSTAINMENT

*Hydro-Québec TransÉnergie consistently puts a lot of effort into maintaining high-quality service. In 2011, we invested $832 million in upgrading, refurbishing and modernizing our assets to ensure system reliability, long term operability and compliance with standards and regulatory requirements, and to meet customers' needs and facilitate cross border interchanges.*

■ In its capacity as Reliability Coordinator for Québec (the Coordinator), our Direction – Contrôle des mouvements d'énergie submitted 95 reliability standards established by the North American Electric Reliability Corporation (NERC) to the Régie de l'énergie in 2009. These standards must be applied in Québec under a continent-wide regime of mandatory standards. In 2011, following a decision by the Régie, the Coordinator began the process of adapting the NERC standards to the Québec context by adding schedules containing clarifications, interpretations, exceptions and terms of application. Once this review has been completed in 2012, the Régie should be able to proceed with implementing the mandatory standards framework in Québec. At the same time, the Coordinator filed a procedure

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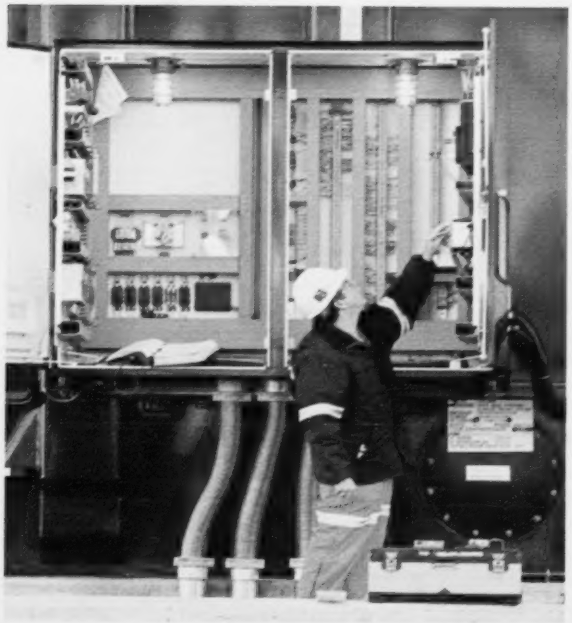
**1.** At Saint Maxime substation, power system electrician Jason Carner discusses an operation with chief power system electrician Stéphane Gagné.

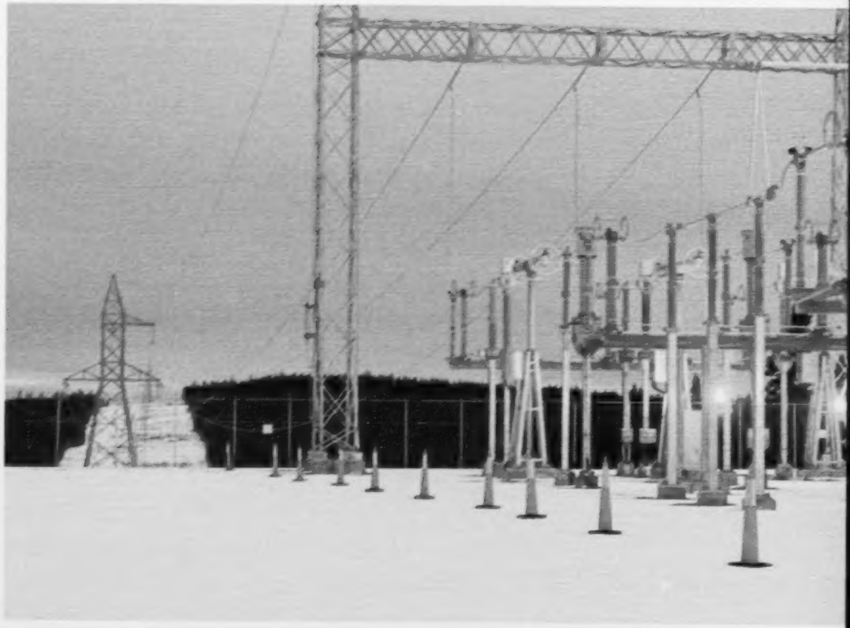
**2.** 161-kV section of Waconichi substation.

**3.** Major maintenance was performed on the 120-kV Sainte-Émélie–Provost line, which serves Saint-Zénon, Saint-Michel-des-Saints and the Attikamek community of Manawan.

**4.** Compensators were added at Jacques-Cartier substation.

**5.** At Châteauguay substation, chief power system electrician Georges Daigneault and power system electrician Gyslain Girard replace insulators underneath the 735-kV current transformers.





▲ François Lemieux, Chief Technician – Protection and Control Systems, was involved in the start-up of the transformers that supply the compensators at Chénier substation.

▶ The Goémon–Mont-Louis–Gros-Morne line connects Mont-Louis and Gros-Morne wind farms to the transmission grid.

for consulting the entities covered by this framework, in anticipation of the filing of future standards. The Régie approved this consultation procedure. In addition, after consulting the main stakeholders, the Coordinator reviewed and submitted the guide to sanctions applicable in case of non-compliance. The Coordinator also passed a NERC spot check designed to determine whether it was fulfilling its responsibilities in applying certain reliability standards that affect functions performed by the Direction.

- We finished adding compensators at Chénier (735/315 kV, Outaouais) and Jacques-Cartier (735/315 kV, Capitale-Nationale) substations, as part of the main transmission system upgrade project, which is intended to increase transmission capacity and improve power quality.
- In Abitibi-Témiscamingue, we completed the refurbishment of the second synchronous condenser at Abitibi substation (735/315/161 kV). This equipment, slated for commissioning in 2012, will help maintain system stability.
- We made steady progress on the project to refurbish and expand Hauterive substation (315/161/69 kV, Côte-Nord).
- Work to increase capacity and replace equipment continues at Chomedey substation (315/120 kV) in Laval. This project is intended to keep up with regional load growth. Scheduled completion: 2013.
- Refurbishment of the auxiliary systems at Châteauguay substation (735/315/120 kV, Montérégie) to ensure the quality of cross-border interchanges got under way. Scheduled completion: 2012.

## INNOVATING TO IMPROVE TRANSMISSION SERVICE

*In 2011, we devoted $18 million to technological innovation for a smarter grid. Our efforts are focused on several key areas: improving system performance and protection; asset sustainment and prevention of failures; development of robotics applied to live-line maintenance; and perfecting power system simulation tools based on industry needs. We work with Hydro-Québec's research institute, IREQ, the company's other divisions and various respected research centres and firms.*

> *Because of the great care it takes in planning its capital projects, Hydro-Québec TransÉnergie enjoys strong credibility with the public and the Régie de l'énergie.*

- We are collaborating with IREQ, Hydro-Québec Production and Hydro-Québec Distribution to develop the smart grid. We have developed a design for an adaptive grid equipped with controllers, sensors, analysis systems and other devices necessary for continuous monitoring of strategic equipment — the very basis of real-time management.
- As part of the ACOR grid response improvement program, we continued the development and rollout of a wide-area compensator control system that will enable us to considerably increase our transmission capacity. In addition, we certified a new type of out-of-step (OSP) protective relay. Developed with IREQ and marketed by Alstom Grid, this digital relay is more reliable and efficient than conventional models.
- Progress was made on the IMAGINE project, which involves automated maintenance and enhanced processing of monitoring data.

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□ We started developing a model for monitoring the state of power transformers. Our goal is to provide proactive maintenance by prioritizing the work needed to ensure the long term operability of these strategic pieces of equipment.

□ With a view to preventing failures, we began work to develop a monitoring device for on load tap changers and high- and low-voltage bushings, in partnership with ABB.

■ By applying robotics to transmission lines, we achieved a first in the area of maintenance. During our inspection of a dozen river crossings using the LineScout robot, a damaged conductor was detected near the island of Montréal. The necessary repairs were carried out on the live line, something that had never been done before. We are continuing to work with BC Hydro to further develop the LineScout, a product of IREQ's laboratories. We also renewed our robotics collaboration with the Shandong Electric Power Research Institute (SEPRI).

■ Hydro-Québec confirmed its world leadership in power system simulation by entering into partnering arrangements with major players in the power industry: RTE (Réseau de transport d'électricité de France), CEPRI (China Electric Power Research Institute), ABB and OPAL RT Technologies (Canada). Our objective is to further develop our real time digital simulator, Hypersim, in line with industry needs.

■ Once again this year, we used a portable, remotely operated de-icer actuated by cartridge (DAC) to de-ice ground wires by means of mechanical force. This new technology has now been added to the tools available to line crews.

**1.** Robert Caron, Electrical Support Technician – Maintenance, checks the joint on a cable semiconductor shield to make sure the insulation is not damaged.

**2.** The civil engineering maintenance and equipment team in Lanaudière celebrated 20 accident-free years of work.

**3.** At Abitibi substation, the No. 2 synchronous condenser was refurbished.

**4.** Switchyard at Sarcelle powerhouse.

**5.** Cable crew chief François Courchesne installs a collar in order to pull a cable between Berri substation and a cable vault 800 m away, while cable worker Jocelyn Marquis watches the operation.

# HYDRO-QUÉBEC DISTRIBUTION

**Isabelle Courville**
President,
Hydro-Québec Distribution

▶ Christopher Cadieux installs a next-generation meter at the home of a customer in Mansonville in the first phase of the rollout of the advanced metering infrastructure.

**OUR MISSION** Hydro-Québec Distribution ensures a secure, reliable supply of electricity and delivers high-quality services to the Québec market.

**OUR FACILITIES** The division operates a distribution system comprising 113,525 km of lines and five distribution control centres, as well as one hydroelectric generating station and 24 thermal generating stations supplying customers on off-grid systems.

**OUR ACTIVITIES** To meet electricity demand, Hydro-Québec Distribution relies primarily on the heritage pool of 165 TWh, which it purchases from Hydro-Québec Production. For demand beyond that volume, it purchases power on the market. The division operates the distribution system efficiently and ensures its reliability. It is also responsible for customer relations at Hydro-Québec. It offers customers products and services tailored to their needs, as well as a wide range of energy efficiency programs.

| **2011 IN FIGURES** | |
|---|---|
| Revenue | **$10.8 billion** |
| Net income | **$374 million** |
| Customers<br>(% of revenue from electricity sales) | |
| *Residential and farm* | **42%** |
| *Commercial and institutional* | **24%** |
| *Industrial* | **31%** |
| *Other* | **3%** |
| Property, plant and equipment as at December 31<br>(including work in progress) | **$8.9 billion** |
| Investments in property, plant and equipment and intangible assets<br>(including the Energy Efficiency Plan) | **$950 million** |

# An Evolvable Network

In 2011, Hydro-Québec Distribution continued to modernize its network, as outlined in Hydro-Québec's *Strategic Plan 2009–2013*. In particular, the division is working on the implementation of an advanced metering infrastructure, which includes the installation of next-generation meters. This project is part of a necessary transition towards a smarter grid that will allow us to offer a wider range of services to our customers, among other advantages. The same motivation applies to the continued deployment of remotely controlled equipment at strategic points in the network: greater automation will enable us to improve both operational efficiency and the quality of electrical service.

We are continuing to diversify our supply sources, in part by launching a program for the purchase of electricity produced by biomass cogeneration facilities using forestry waste.

As in 2010, we surpassed our energy conservation goals, thanks to the popularity of our energy efficiency programs and the hard work of our employees. We are still targeting 11 TWh of cumulative energy savings by 2015.

## A FLEXIBLE SUPPLY STRATEGY

*Our supply strategy makes use of a flexible and diversified energy portfolio that enables us to ensure reliable electrical service at the lowest cost in spite of fluctuations in demand.*

- In October 2011, the Régie de l'énergie approved our Electricity Supply Plan 2011–2020, which is based on the demand forecast for Québec over a 10-year period. Energy demand is expected to increase by almost 13 TWh over that period.
- In November, the Régie approved the 12 contracts resulting from the 2009 call for two 250-MW blocks of wind power produced in Québec, one block being reserved for Aboriginal communities and the other for community initiatives. The selected projects total 291.4 MW, and deliveries are scheduled to begin on December 1, 2013.
- In December, in accordance with a Québec government order-in-council, we launched a program to purchase 150 MW of electricity produced by forest biomass cogeneration in Québec. The terms and conditions of this program were approved by the Régie de l'énergie.
- Mont-Louis and Montagne-Sèche wind farms and the Phase 1 turbines of Gros-Morne wind farm began supplying electricity in 2011, bringing the installed wind power capacity Hydro-Québec Distribution has contracted for so far to 706.5 MW.
- The wind power projects resulting from the 2005 (2,000 MW) and 2009 (500 MW) calls are moving forward at a good pace. The proponents are continuing the impact assessments and completing the requisite procedures with stakeholder groups.
- In March, two hydropower plants with a total capacity of 13.3 MW began delivery under a power purchase program targeting small hydro, which we launched in 2009.

▲ The radio-frequency levels close to a next-generation meter are well below Health Canada's recommended limits. For example, the average level of radio frequencies one metre away from the device is about 100,000 times below these limits.

► A router transmits the consumption data of customers served by the advanced measuring infrastructure.

## ONGOING EFFORTS IN ENERGY EFFICIENCY

*Our energy efficiency programs generated new savings of 995 GWh in 2011, for a total of 6.2 TWh in annual savings achieved to date. To reach our cumulative goal of 11 TWh by 2015, we will continue to innovate and to develop programs tailored to customer needs.*

■ The Electronic Thermostats for Rental Properties program has far exceeded expectations. In 2011 alone, 462,500 thermostats were installed, surpassing the goal of 440,000 units by June 2013. Under this program, launched in July 2010, bimetallic thermostats are replaced by electronic models at a cost of $10 each, including installation. More than 90% of the components of the old thermostats are recycled.

■ In 2011, we introduced a program aiming to help low-income households reduce their energy use by replacing old, high-consumption refrigerators with more efficient models. This initiative will be rolled out in stages and will have been made available to all regions of Québec by the end of 2015.

■ In a follow-up to the Go with the Flow campaign, which promoted the Home Diagnostic, we have launched Dare to Compare. This service lets customers compare their electricity consumption against that of other households with a similar profile (type of home, number of occupants, etc.). Participants receive recommendations adapted to their situation.

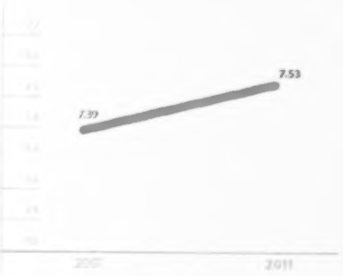
■ In March, the Régie de l'énergie approved the Support Program for the Energy Optimization of Sustainable Urban Development Projects. This initiative provides financial assistance for home construction or renovation projects that optimize building energy efficiency through conventional measures or new technologies or that implement a district heating system powered by renewable energy.

■ In June, the Government of Canada awarded us the ENERGY STAR® Market Transformation Award in the Utility of the Year – Provincial category. ENERGY STAR awards recognize excellence in the promotion of energy-efficient products, technologies and services.

> *Our supply strategy relies on a flexible and diversified energy portfolio.*

> *The key to our success: energy efficiency programs tailored to our customers' needs.*

**RESIDENTIAL, COMMERCIAL AND BUSINESS CUSTOMER SATISFACTION**



◄ Sylvain Pagé, manager of the Canexus plant in Beauharnois, and Marie-Victoria Aranda, Senior Commercial Delegate – Large-Power Customers, discuss an energy efficiency project.

▲ Lineworker Sandrine Charbonneau installs a grounding cable before carrying out maintenance work on the Saint-Michel-des-Saints–Manawan line.

- In 2011, four new members were welcomed to the Energy Savers' Circle, which now counts 52 large organizations. To join, an organization must reduce its annual electricity consumption by at least 5% or 50 GWh. Four members attained Elite status, a category reserved for those achieving even greater savings. Five large organizations have now earned Elite status.
- In January 2011, we launched two integrated energy efficiency offerings to increase the role of our business customers in reaching the targets laid out in our Energy Efficiency Plan. These new programs provide an integrated approach to improving the energy efficiency of buildings and industrial systems. As at December 31, 2,500 projects had been submitted and 580 GWh in savings had been generated.

## ADAPTING TO OUR CUSTOMERS' NEEDS

*Hydro-Québec Distribution makes every effort to live up to customer expectations. This includes continually improving our business model and adopting industry best practices to provide top quality customer service.*

### RESIDENTIAL, COMMERCIAL AND INSTITUTIONAL CUSTOMERS

- For the last 10 years, Hydro-Québec has offered special payment arrangements to low-income customers who are having trouble paying their electricity bills. In 2011, we entered into 61,255 such arrangements, for arrears of $293 million.
- In March 2011, the Régie de l'énergie authorized an across-the-board rate reduction of 0.41%, effective April 1, 2011. In March 2012, further to an application filed in August 2011, it approved an across-the-board rate reduction on the order of 0.5%, effective April 1, 2012.

### LARGE-POWER CUSTOMERS

Industrial, commercial and institutional customers with a power demand of 5 MW or more consume 36% of the electricity distributed in Québec.

- In May, the broad lines of the Plan Nord were announced, sparking an increased interest in industrial development north of the 49th parallel. Hydro-Québec Distribution will meet the requests for electrical service that the implementation of this plan will engender.

### HYDRO-QUÉBEC DISTRIBUTION'S INVESTMENTS, EXCLUDING THE EEP[a] ($M)

| | **2011** | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|
| Development | **326** | 346 | 325 | 308 | 267 |
| Asset sustainment (reliability and long-term operability) | **407** | 382 | 384 | 356 | 457 |
| Total | **733** | 728 | 709 | 664 | 724 |

a) EEP: Energy Efficiency Plan

▲ Line crew chiefs Daniel Laliberté and Jonathan Prud'homme consult Hydro-Québec's work safety code.

▶ Cable workers Alexandre Décarie and Jean Marie Eyango Eyango install a medium-voltage cable at Mont-Royal substation in Montréal.

## MODERNIZING THE DISTRIBUTION SYSTEM

*In 2011, Hydro-Québec Distribution continued to invest in the development, reliability and long term operability of its facilities in order to ensure high-quality electrical service. It focused on the technological evolution of the distribution system and the efficiency of its business processes.*

- In June, Hydro-Québec Distribution submitted its remote meter reading project to the Régie de l'énergie for approval. Our main goals are to replace all electricity meters, half of which are nearing the end of their useful life, to improve efficiency and to initiate the technological evolution that will pave the way for new services. Subject to Régie approval, we will install 3.8 million next generation meters by 2017 as part of the deployment of an advanced metering infrastructure (AMI). This infrastructure is a comprehensive solution for the collection and compilation of customer consumption data. The new meters will automatically send the information to a data acquisition system, which will in turn send it to Hydro-Québec's billing system. As a result, the company's employees will no longer have to access customers' premises to read meters. In addition, we will be able to carry out a number of operations remotely, for the benefit of customers: disconnection and connection when customers move, outage detection, service restoration, etc.
- In the first stage of the AMI rollout, we installed 20,000 next generation meters in Boucherville, in the regional county municipality of Memphrémagog, and in the Villeray neighborhood in Montréal.
- We pursued the distribution automation program by installing remotely controlled equipment to reduce the duration of power outages. To date, we have installed 3,032 such units at strategic points across the network, including 556 in 2011.
- Among the measures put in place to prepare for the winter peak, we completed the installation of capacitor banks under the Addition 1,000 Mvar project. A total of 802 capacitor banks were installed.
- In June 2011, the CATVAR project (voltage regulation and reactive power control) was approved by the Régie de l'énergie. Work on part of this project (deployment of measuring equipment and a voltage regulation system) began during the year. The CATVAR project is designed to improve the distribution system's energy performance through more precise voltage regulation. Once fully implemented, it will yield annual energy savings of 2 TWh.
- In 2011, we fulfilled 51,024 hookup requests on schedule for a total investment of $208 million.

## INNOVATING TO IMPROVE DISTRIBUTION SERVICE AND ENERGY EFFICIENCY

*Hydro-Québec Distribution counts on innovation to enhance system performance and reliability, ensure the long time operability of its assets and improve customer energy efficiency as well as the efficiency of its own facilities. In 2011, the division invested $20 million in innovation projects carried out in conjunction with Hydro-Québec's research institute, IREQ.*

- In 2011, we continued to monitor the performance of the MILE system (intelligent power line maintenance), which has been deployed as part of a pilot project on seven lines (1,200 km) serving 10,500 customers. This technology, developed by IREQ, detects and locates permanent and transient faults on the distribution network. In 2012, MILE will be deployed on another 27 lines, with the objective of reducing the number and duration of power outages and thus improving our system reliability index.

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> *Our objective: offer a high-quality customer experience on all fronts.*

- In 2011, our thermography trucks were equipped with the Sniffer, a partial-discharge detector designed for use in the underground system. Developed by IREQ and manufactured by ndb Technologies, the Sniffer lets workers quickly and easily detect partial discharges, which helps keep them safe on the job.
- IREQ's energy technologies laboratory (LTE) has developed a new version of SIMEB. This software program simulates the energy consumption of commercial and institutional buildings, be they new or existing, in order to optimize energy efficiency projects. SIMEB is made available to building professionals free of charge and is also used in Hydro-Québec's Buildings Program.

3

- Industrial waste heat contains significant but underutilized energy potential. LTE is working with Université de Sherbrooke's Chair in Industrial Efficiency (financed by NSERC, Hydro-Québec, Rio Tinto Alcan and CanmetENERGY), as well as with other laboratories and industry players, to develop technologies for collecting and using this form of energy.

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**1.** Lineworker David Lemay attaches a cutout supply cable for a remotely monitored transformer deployed as part of the CATVAR project.

**2.** Nathalie Bergamin, Representative – Customer Service.

**3.** Carol Buckley, Director General of Natural Resources Canada's Office of Energy Efficiency, presents a 2010 ENERGY STAR award to Dimitri Coll, Marketing Manager – Product Related Programs.

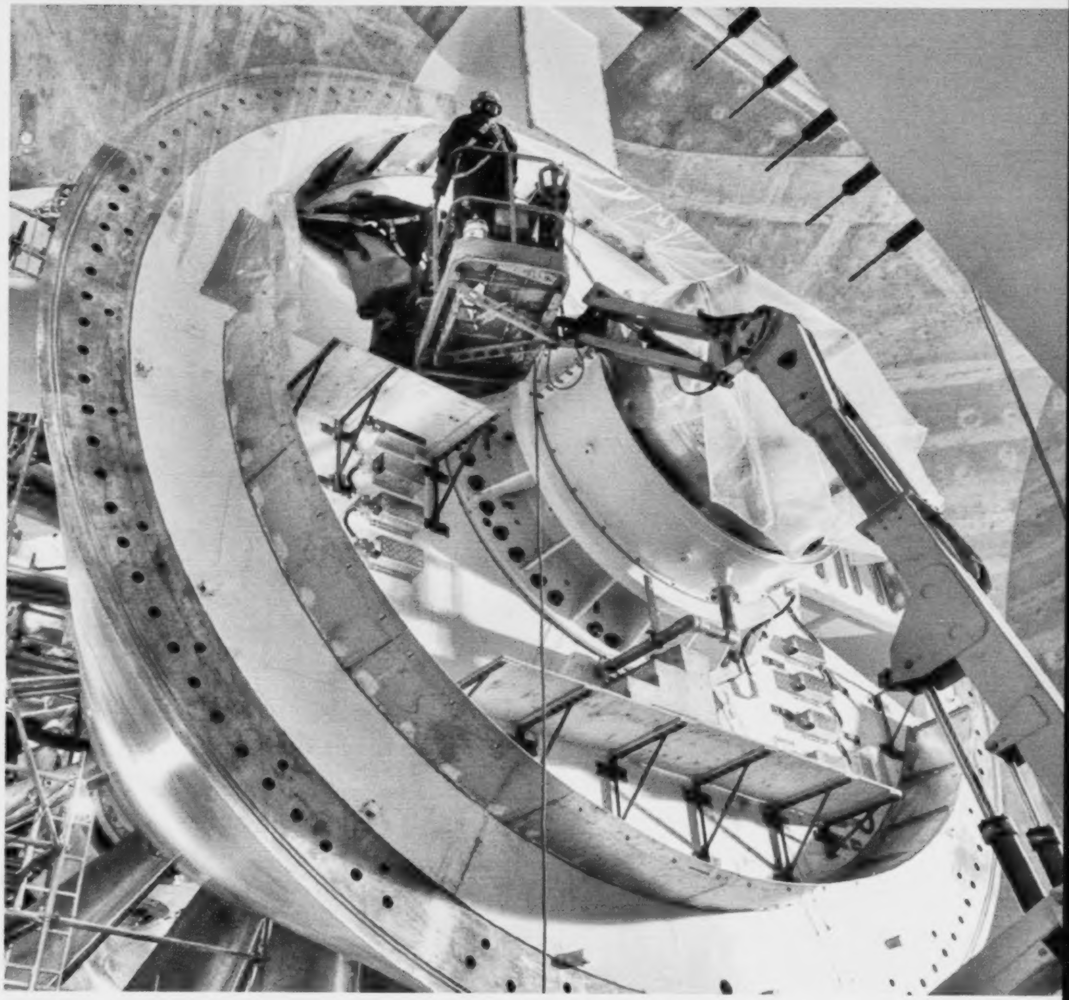
**4.** Katya Fuentes-Betancourt, Advisor – Marketing, and metering technician Mario Poirier discuss quality control for the residential meters that will be part of the advanced metering infrastructure.

**5.** In October 2011, a huge snowstorm caused many power outages in the Eastern United States. Several Hydro-Québec teams helped New Hampshire and Connecticut line crews restore service. This show of solidarity was appreciated all around: by local authorities, system operators and… customers! Moreover, the Edison Electric Institute recognized the exceptional efforts deployed by Hydro-Québec and its employees by presenting the company with an Emergency Response Award 2011.

# HYDRO-QUÉBEC ÉQUIPEMENT ET SERVICES PARTAGÉS AND SEBJ

**Réal Laporte**

President, Hydro-Québec Équipement et services partagés
President and Chief Executive Officer, Société d'énergie de la Baie James



▶ Stay ring of a bulb unit at Sarcelle powerhouse.

**OUR MISSION** Hydro-Québec Équipement et services partagés (HQESP) and Société d'énergie de la Baie James (SEBJ) design and carry out projects for the construction and refurbishment of generating and transmission facilities that optimally meet Hydro-Québec's needs. Working in partnership with host communities and industry, we offer high-quality, cost-effective solutions that apply best practices in social and environmental acceptability. Furthermore, through the Centre de services partagés (shared services centre), our division offers real estate management, material management, procurement, transportation and other services to all Hydro-Québec divisions and units.

**OUR ACTIVITIES** Our services cover all project stages and aspects: management, communications with stakeholders, permitting, field surveys and geomatics, biophysical and human environment studies, design and implementation of environmental measures, engineering, procurement, construction, health and safety, in-plant and on-site quality assurance, and project management up to handoff to the operator. We are constantly seeking new ways to maximize facility performance and reduce costs and construction time.

| 2011 IN FIGURES | |
|---|---|
| Volume of activity | |
| *Construction* (HQESP and SEBJ) | **$2.1 billion** |
| *Shared services* | **$0.5 billion** |
| Main customers – Construction | |
| *Hydro-Québec Production* | **57%** |
| *Hydro-Québec TransÉnergie* | **43%** |

# Building Success Day by Day

At Hydro-Québec Équipement et services partagés and Société d'énergie de la Baie James, our volume of activity totaled $2.6 billion in 2011: $2.1 billion for Construction and $0.5 billion for Shared services. Our employees once again proved equal to the challenge of working on more than 1,400 projects of all sizes, often under difficult conditions. Better still, in their determination to excel and innovate, they managed to deliver high-quality structures in line with our commitments, and to do so ahead of schedule in several cases.

Most of our generation projects proceeded as planned and some are now complete or nearing completion. In the Baie-James region, for example, Eastmain-1-A powerhouse has come on stream and Sarcelle powerhouse will follow suit in 2012. These two facilities are an integral part of the La Grande complex. In Minganie, the Romaine project is moving ahead by leaps and bounds, with crews active on all fronts at the Romaine-2 jobsite.

As for transmission, we continued numerous projects or studies involving the refurbishment of existing assets, connection of generating facilities or addition of transmission capacity. The transmission system expansion project in Minganie also got under way, laying the groundwork for integrating the output from all four generating stations in the 1,550-MW Romaine complex.

**MASTERLY EXECUTION**

*The projects we carry out often pose major technical, physical, human, social and environmental challenges. We owe our success to the fact that our teams and partners tackle each challenge with a desire for excellence and a spirit of cooperation.*

| VOLUME OF CONSTRUCTION ACTIVITY ($B, FINANCING EXCLUDED) | | | | |
|---|---|---|---|---|
| **2011** | 2010 | 2009 | 2008 | 2007 |
| **2.1** | 2.6 | 2.6 | 2.4 | 2.2 |

KEY ACHIEVEMENTS IN GENERATION PROJECTS

- In the Baie-James region, the first generating unit at Eastmain-1-A powerhouse started up in June 2011, ahead of schedule. The second followed suit in December and the third in January 2012. On the Sarcelle jobsite, the tailrace was impounded and the tailwater gates of all of the generating units were installed and put into operation. The Eastmain-1-A/Sarcelle/Rupert project will boost Hydro-Québec's installed capacity by 918 MW and provide an annual output of 8.7 TWh.
- At the Romaine-2 jobsite in Minganie, water from the Romaine was diverted to a temporary tunnel, allowing construction of the dam to get under way. The 640-MW generating station—the first of the four that will form the Romaine complex—will come on stream in 2014. The other three will be commissioned between then and 2020. Once complete, the complex will yield an annual output of 8.0 TWh for an installed capacity of 1,550 MW.

▲ At the Romaine-2 powerhouse site, final preparations before pouring the mud slab of a generating unit, and installation of temporary walls at the ends of the penstocks.

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1. Stringing a transmission line: a pilot line is paid out from a helicopter to carry across a pulling rope connected to the conductor.

2. Archive advisors Martine Rodrigue and Jean Fournier preparing to encapsulate a technical drawing in a Mylar sleeve for preservation. Dating back to 1956, the drawing depicts a generating unit at Bersimis-1.

3. Installing jumpers on one of the towers supporting the Beauceville–Sainte-Marie line.

- We finished refurbishing the penstocks at Rapides-des-Quinze generating station.
- We also completed refurbishment of Bourque (Abitibi-Témiscamingue), Carillon (Laurentides), Mékinac and Carpe-Rouge (Mauricie) dams, in addition to the retaining structures at Baskatong reservoir (Outaouais).

## KEY ACHIEVEMENTS IN TRANSMISSION PROJECTS

- In Baie-James, construction of Eastmain-1-A substation, Sarcelle substation and the related 315-kV tie lines came to a close. These facilities are scheduled to be fully commissioned in 2012.
- In the same region, we completed and commissioned Waconichi substation (161/25 kV) and its tie line, which will help ensure security of supply to the community of Mistissini and meet growing regional demand.
- In the Gaspésie region, Mont-Louis, Gros-Morne, Montagne-Sèche and Le Plateau wind farms were brought onto the grid.

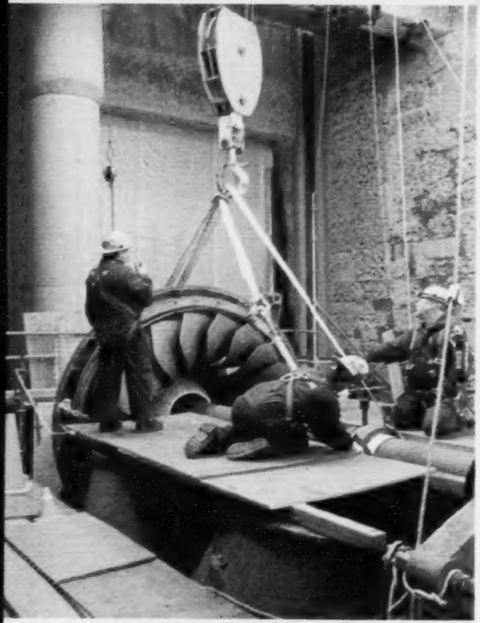
> *According to the Observatoire des énergies renouvelables (Observ'ER), the Eastmain-1-A/Sarcelle/Rupert project is "a prime example of how to integrate environmental constraints."*

- As part of the main transmission system upgrade project, we finished adding or refurbishing compensators at Chénier (735/315 kV, Laurentides), Abitibi (735/315/161 kV, Abitibi-Témiscamingue) and Jacques-Cartier (735/315 kV, Capitale-Nationale) substations.
- In Montréal, a number of 120-kV underground lines between Mont-Royal and Laurent substations, and between Berri and Notre-Dame substations, were rebuilt and started up.
- In the Chaudière-Appalaches region, we erected and commissioned the 120-kV Beauceville–Sainte-Marie line.

## GENERATION: WORK IN PROGRESS

*While the Eastmain-1-A/Sarcelle/Rupert project is nearing completion, the Romaine complex will hit its stride in 2012 with the launch of a second jobsite: Romaine-1. In 2011, we worked on numerous refitting or refurbishment projects to enhance the performance of our generating assets or ensure their long-term operability. In all, our generation projects and studies totaled $1.2 billion of activity in 2011.*

- Eastmain-1-A/Sarcelle/Rupert project:
  - □ At Sarcelle powerhouse, excavation of the downstream cofferdam proceeded as planned, as did the assembly of the three bulb-type units, which will be commissioned in stages in 2012.
  - □ Follow-up continued on measures to mitigate the project's environmental impacts and help the Crees resume their use of the area around the Rivière Rupert. One highlight of the year was the Waskaganish community's successful cisco fishery. By the end of the program, around 500 specific mitigation measures, such as the development of spawning grounds and goose ponds, will have been implemented in the project area. The Crees (the trappers concerned, their families and Cree businesses) are responsible for carrying out the work.



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> *The Romaine project is currently one of the largest construction sites in Canada.*

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□ In 2011, $275 million (financing excluded) was invested in the Eastmain-1-A/Sarcelle/Rupert project. Employment totaled 1,463 person-years, with Cree and Jamesian workers accounting for 10.6% of the workforce.

■ Romaine project:

□ On the Romaine-2 jobsite, we began erecting the 109-m-high dam after diverting the river to a temporary diversion tunnel. Construction also got under way on the embankment dikes. An asphalt concrete core will be used in the Romaine-2 retaining structures to make them watertight. In addition, we continued clearing work for the reservoir, as well as excavation for various structures: the spillway, intake, 5.5-km headrace tunnel and powerhouse.

□ At Romaine-1, we completed the geological and geotechnical investigations, determined the final siting of the structures and initiated the procurement process for supply and installation of the generating units.

□ In preparation for the start of construction on the Romaine-3 jobsite, we built a workcamp at kilometre 84 of the Route de la Romaine.

□ Work proceeded on the Route de la Romaine, including construction of a permanent bridge at kilometre 10. The 150-km road will provide access from Highway 138 to the Romaine structures and facilities.

□ In 2011, $493 million (financing excluded) was invested in the Romaine project. Employment rose to 1,198 person-years, with Côte-Nord and Innu workers accounting for 50% of the workforce. Contracts awarded in the region totaled $69 million.

■ We continued the refurbishment and modernization of a number of hydropower stations.

■ Refurbishment went on at Gouin dam (Mauricie).

■ In 2011, the accident frequency rate was 5.5 per million hours worked on our jobsites. This historically low result is the product of the sustained, painstaking efforts we make in our activities to establish a culture of excellence in the area of health and safety.

## TRANSMISSION: WORK IN PROGRESS

*In 2011, the volume of our transmission activities amounted to $0.9 billion, with more than 1,200 projects under way to refurbish, reinforce or extend the grid and integrate new wind power capacity. Among other highlights, we embarked on a project to extend the transmission system in Minganie in preparation for connecting the four Romaine generating stations between 2014 and 2020.*

■ As part of the Minganie transmission system expansion project, we began land clearing for the 735-kV line that will link the 640-MW Romaine-2 generating station to Arnaud substation as of 2014.

■ In Côte-Nord, the project to refurbish and expand Hauterive substation (315/161/69 kV) is moving faster than expected. Scheduled completion: 2012.

■ Work got under way on the 315-kV line that will connect the 300-MW Lac-Alfred wind farm (Bas-Saint-Laurent) to the grid as of 2013.

■ We broke ground on a 230-kV line designed to connect the 68-MW New Richmond wind farm (Gaspésie). Scheduled completion: 2012.

**4.** Removing a runner from the turbine chamber at Hull-2 generating station.

**5.** Installing a prefabricated water-oil separator at Abitibi substation.

**6.** Cleaning the oil tank of the air/oil pressure system on a generating unit at Sarcelle powerhouse.

▲ Rehabilitation work was done on Bourque dam in Abitibi-Témiscamingue.

▶ Jocelyn Jean, Construction Site Manager, and Christine Patoine, Supervisor – Dikes and Dams, on the Romaine-2 site.

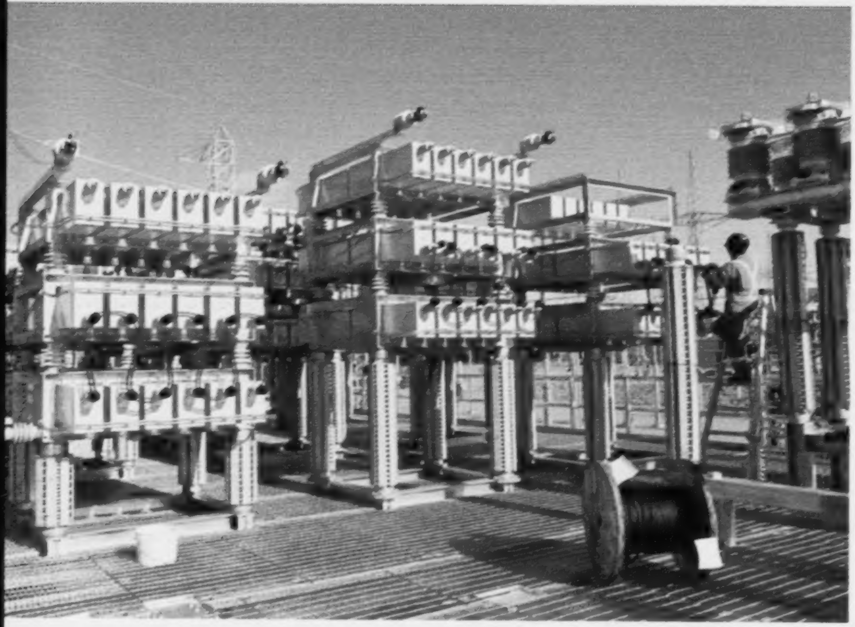
> *We are engaged in a process that will make us a health and safety benchmark in the construction industry. The excellence of our results can be attributed to the efforts of everyone who takes part in our projects.*

- Public hearings were held on several projects in 2011, including the planned Outardes substation (735/315/120 kV) and related 735-kV lines in Manicouagan, and the development of the transmission grid serving the northeastern part of metropolitan Montréal. The latter plan calls for a 315 kV line between the Mauricie and Lanaudière regions, and various substation projects, including Bout-de-l'Île (735/315/120 kV), Bélanger (315/120/25 kV), Lachenaie (315/25 kV) and Pierre-Le Gardeur (315/120 kV). In anticipation of the expansion of Bout-de-l'Île substation, the nearby 159,000-$m^2$ Hydro-Québec storage depot was relocated to other sites. Storage facilities are managed by the Centre de services partagés.
- We filed environmental studies for a number of projects in 2011, including construction of a 315/25-kV substation north of Blainville and a related tie line, and a new 315/25-kV Henri-Bourassa substation, which is part of the plan to develop the transmission grid serving the northeastern part of metropolitan Montréal.

## INNOVATION SUPPORTING CONSTRUCTION PROJECTS

*Driven by a genuine culture of innovation, our teams approach design, engineering, construction, the environment and all other aspects of our projects with a single goal in mind: use the best methods and technologies available and find new and improved solutions in order to deliver top-performing facilities.*

- In Haute-Gaspésie, the 106-km line linking Mont-Louis and Gros-Morne wind farms to Goémon substation (230 kV) crosses seven valleys where winter weather conditions are particularly conducive to icing. Given the exceptional length of the line spans (from 1,100 to 1,700 m) and factors such as soil type, the project's success hinged on a number of innovations: four tower designs able to withstand heavy ice loading; a surge arrester with an external spark gap rather than a conventional overhead ground wire; two types of high-strength conductors; and a column foundation, which is better suited to shale soil, easy to install and low in cost. The project was a success from every standpoint—technical, environmental and social—thanks to our teams' skills and their sense of initiative and collaboration.
- Systematic use of GPS for positioning at all stages of the Goémon–Mont-Louis–Gros-Morne line project (geotechnical study, clearing, construction and environmental compliance assurance) greatly facilitated fieldwork, particularly in hard-to-reach areas.
- On the Romaine-2 jobsite, combined use was made of CATIA™ V5 (Computer-Aided Three-dimensional Interactive Application) and DELMIA (Digital Enterprise Lean Manufacturing Interactive Application) for designing the powerhouse and optimizing construction processes. To reduce the time and cost of work, we opted for composite steel rather than concrete slabs. In addition, most walls will be built of prefabricated concrete panels rather than masonry, and we will use composite steel instead of concrete for the platform and piers downstream of the transformers.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For the Romaine-1 jobsite, we designed several structures in 3D and integrated the lessons learned at Romaine-2, which will save time and money.

- For refurbishment project engineering, we are making increased use of 3D and 4D tools, thus facilitating the exchange of information, minimizing misunderstandings and making it easier to find the best solutions.
- We have implemented a jobsite feedback system that lets inspectors and site supervisors enter their daily field reports on a laptop or tablet computer and then upload them to a database updated in real time. The system is particularly useful for monitoring quality and activities, and for contract administration.
- When we commission a modular protection, automation and control building for a transmission substation, we use a startup simulator to check internal connections. Incorporating technology and tools developed both inside and outside the company, the simulator makes it easier to validate complex functions such as voltage control. It can simulate several pieces of equipment at the same time and can also interface with current and voltage simulators.

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**1.** Series compensation platform at Jacques-Cartier substation.

**2.** Installing the new control and power cables required to upgrade station services at Châteauguay substation.

**3.** Construction of the Sarcelle–Eastmain-1 line was completed in May.

**4.** At Rapides-des-Îles generating station, removing a gate from the secondary spillway for replacement.

# TECHNOLOGICAL INNOVATION: A KEY AVENUE OF DEVELOPMENT

▶ Tomorrow's grid will be smarter and more automated; it will also be networked. Together with corporate IT and telecommunications specialists and with experts in the divisions, IREQ is working on the development of a smart power grid. New technologies and applications—and their impact on the grid—are tested in the power system simulation laboratory, which is among the world's most advanced laboratories of its kind. In addition to offline simulators, IREQ uses Hypersim, an extremely advanced real-time simulator that optimizes power system design and operation. Seated, foreground: Eugen Dimbu and Karine Gauthier; behind them: François Guay and Marcel Racine; seated, background: Silvano Casoria and Sylvain Guérette—all engineers.

Technological innovation plays a key role at Hydro-Québec. Our efforts in this regard are focused on two missions: improving power system performance and preparing tomorrow's smarter and more automated grid. Rallying to meet this twofold objective are experts recognized worldwide for their excellent work not only in electrical power but also in information and communication technologies, since the smart grid will be, first and foremost, a networked one.

We allocate some $100 million annually to projects at our research institute, IREQ. In 2011, IREQ intensified its work on the smart grid and ground transportation electrification while continuing its research on power system reliability and long-term operability, energy efficiency, wind power integration and emerging renewables (hydrokinetic, solar and deep geothermal energy). Taking an open innovation approach, IREQ works hand in hand with major industry players to share skills, resources and risks. In addition, all of its projects are conducted in close collaboration with Hydro-Québec's divisions and other experts in the Groupe – Technologie.

During the year, the company passed several milestones in modernizing its telecommunications network and integrating the information and communication systems underlying all of its activities. It also continued its computer security efforts, especially in the area of cyber security.

## ENERGY EFFICIENCY

*Improving energy efficiency in the power system and in customer facilities remains a priority for IREQ.*

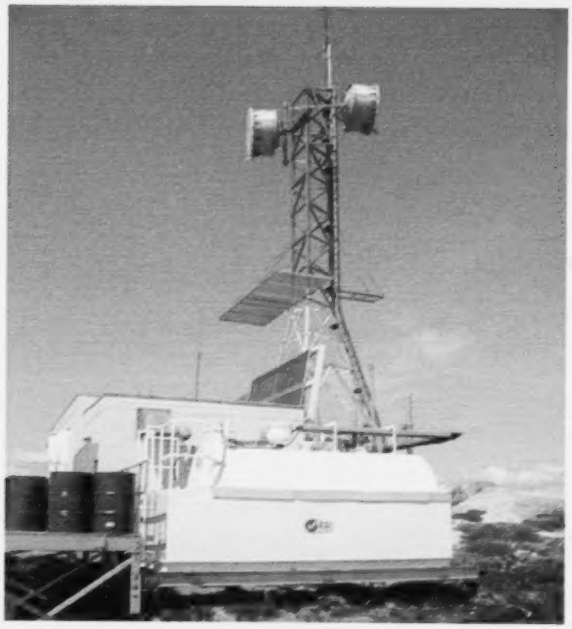
■ We continued working on REPERE, a project designed to optimize transmission system performance and efficiency. Work focused primarily on improving the state estimator, used to determine the most probable state of the power system at any given time, and on developing tools to reduce transmission losses and ensure better voltage control.

## WIND POWER AND EMERGING RENEWABLES

*A vital partner of the Québec wind power industry, Hydro-Québec is at the forefront of research on integrating wind generation into large power grids. IREQ is also investigating emerging renewable energies that could eventually be used to complement hydro and wind power in Québec.*

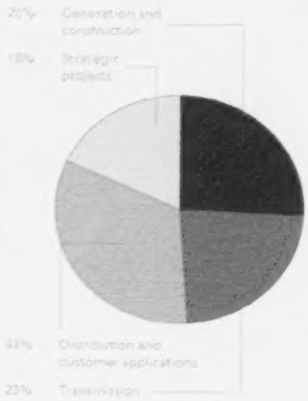
■ In 2011, the Utility Wind Integration Group (UWIG) honored three IREQ research teams for their contribution to simulation tools, dynamic modeling and analysis of power systems with a large share of wind power.

◄ Advisor Jonathan Voyer installing a server in the IT centre computer room.



▲ North of Sept-Îles, Premio tower is one of the 19 to be built as part of the 3M project, which will convert the Côte-Nord telecommunications network to more modern digital technology.

**BREAKDOWN OF IREQ INNOVATION EFFORTS IN 2011 (BY AMOUNT INVESTED)**



- Our R&D projects in the field of wind power progressed at a steady pace. They mainly aim to improve wind and energy forecasting in order to maximize the contribution of wind without compromising power system reliability.
- We continued our collaboration with IEA WIND Task 25, an International Energy Agency task force focusing on the design and operation of power systems with large amounts of wind power.
- We also continued to study the operation, potential and applications of hydrokinetic turbines and of solar and deep geothermal energy.

## SMART POWER GRID

*IREQ researchers, Hydro-Québec division experts and corporate IT and telecommunications specialists are working together on the development of an increasingly smart power grid, in partnership with industry, universities, governments and other organizations.*

- IREQ is coordinating some 20 innovation projects in power system automation and real-time management, such as the following:
  - ☐ Development of supervisory control and other systems to increase system transfer capability
  - ☐ Optimized operation of facilities to increase grid efficiency and reduce losses
  - ☐ Development of proactive maintenance systems and strategies for the distribution system
- IREQ began upgrading its experimental distribution line so it can test new technologies and applications in advanced protection, distributed generation, underground systems, metering, telecommunications and other areas. This work will be done in collaboration with Hydro-Québec Distribution.

## INFORMATION AND COMMUNICATION TECHNOLOGIES

*At Hydro-Québec, information and communication technologies (ICT) play a vital role in company productivity and power system control.*

- Under the ICT security master plan, we started to implement the 2011–2014 corporate ICT security program. Having prioritized the areas requiring action, we launched a request for proposals covering 20 projects. We also consolidated solutions that had already been deployed to ensure that our systems are in line with industry standards.

▲ Line workers Marc Asselin, Christian Toupin and Maxime Dion running an optical cable behind a cable-pulling truck.

▶ Analysts Simon Surprenant and Dominik Larose keeping a watchful eye on IT systems.

## TELECOMMUNICATIONS

- Modernization of the Hydro-Québec telecommunications network continued with the deployment of digital microwave links between Boucherville and Carignan, Hertel and Saint-Jean, and Chamouchouane and Saguenay substations, and completion of the Bryson–Vignan project.
- In the Côte-Nord region, we connected the Romaine-3 site to the telecommunications network over a permanent optical link and set up a temporary link to Rivière-au-Tonnerre workcamp.
- In the Baie-James region, we completed the connection of Eastmain-1-A and Sarcelle powerhouses to the telecommunications network.
- We continued connecting a number of wind farms to the telecommunications network: Le Plateau, Saint-Robert-Bellarmin, Mont-Copper, Mont-Miller and L'Érable.
- As part of our telecommunications network modernization effort, we continued deploying a next-generation synchronous optical network (NG SONET) and Internet protocol – Multiprotocol label switching (IP/MPLS). We completed the links in the Montréal–Québec corridor and started work on the Est-du-Québec links, which will connect some 15 sites. IP/MPLS has enabled us to initiate remote maintenance and remote disturbance recording at Hertel and Marie-Victorin substations.
- Under a project in Boucherville, the regional county municipality of Memphrémagog and the Villeray neighborhood in Montréal, we set up the meshed network that will serve as the backbone for the advanced metering infrastructure. We also prepared for massive deployment of such a network in Montréal and Laval.
- We continued security enhancement projects intended to ensure that our telecommunications network complies with ISO 27001 and with the requirements of the North American Electric Reliability Corporation.

## INFORMATION TECHNOLOGIES

- Regarding information technologies (IT), we pursued our continuous improvement approach, aligning our methods and processes with industry best practices.
  - We started deploying Hydroscope, a coherent set of processes for managing IT projects involving the development of IT solutions or the upgrading of existing solutions. Hydroscope is based on two frameworks: Fujitsu's Macroscope and CMMI (Capability Maturity Model Integration).
  - To support the management of IT services, we completed several steps in the deployment of ITIL (Information Technology Infrastructure Library), including the creation of a service desk; the implementation of processes for change, incident and release management; and the development of a configuration management process that will be implemented in 2012.
- With more than 700 virtual servers, our virtualization centre now supports 78% of the company's computer applications. In 2011, our efforts were directed toward consolidating and standardizing physical and virtual servers.

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## OPEN INNOVATION

*We have adopted a partnership approach to innovation so that we can benefit from complementary expertise while sharing both resources and risks. With this in mind, we have established collaborative arrangements with universities, public research agencies and industrial firms.*

- In 2011, Hydro-Québec contributed $5.0 million to Québec universities in the form of research contracts and funding for 18 research chairs.
- In collaboration with the Ouranos consortium on regional climatology and adaptation to climate change, we updated the scenarios we had produced in 2010 predicting the effect climate change will have on electricity demand and hydropower generation in Québec over the coming decades. We also began to assess the possible impact of new management rules at our hydropower facilities, given the projected change in the hydrological regime.
- In 2011, we entered into 20 partnerships with public and private research players, including industry, inside and outside Québec. We are now involved in about 100 alliances, which provide us with real technical and operational benefits while giving exposure to Québec expertise and helping us to gain insight into strategic issues in our field. Some examples:
  - ☐ With Alstom and Rio Tinto Alcan, we are continuing to develop the Scompi robot. This IREQ invention can perform a range of maintenance and repair jobs on hydropower station turbines and gates.
  - ☐ With TAG Corporation (India), we entered into an agreement to market the spacer-damper system developed in our laboratories.
  - ☐ With Consolidated Edison (U.S.A.), we are running a demonstration program for technology designed to test the insulation of low-voltage underground cables.
  - ☐ With the GCE Group (Russia), we signed a framework agreement under which energy efficiency innovation projects will be conducted for small, medium and large industry.

**1.** Annie Trépanier, chemical technician at LTE, conducts spectral analysis in a project to improve energy efficiency for the pulp and paper industry.

**2.** IREQ has developed extensive expertise in lithium-ion battery materials for ground transportation and other energy storage applications (see "Innovation Serving Transportation" on page 37). These materials are more environmentally friendly and offer many advantages in terms of safety and performance. Our R&D projects cover both high-power cells and high-energy cells. Here, technician Joël Fréchette does a quality control check on a water-based electrode in the energy storage laboratory. In the background, technician Francis Barray inspects an electrode as it is removed from the oven.

**3.** J. Charles Smith, Executive Director of UWIG, presents engineer Richard Gagnon and his team with a plaque for their work on integrating wind energy into large power systems. Two other IREQ teams also earned UWIG awards.

# GROUND TRANSPORTATION ELECTRIFICATION

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**1.** Technologist Martin Dontigny notes his observations about a new material for lithium-ion batteries. In the background, his colleague Vincent Gariépy programs temperature settings for the heat-treating oven used to synthesize the material.

**2.** In 2011, Hydro-Québec incorporated 10 Chevrolet Volts into its fleet; more will be added in spring 2012. The company's projects in electric mobility are headed by Pierre-Luc Desgagné, Senior Director – Strategic Planning.

**3.** In spring 2012, some one hundred 240-V charging stations will be available in parking areas at several retail outlets of the founding members of The Electric Circuit, Canada's first public charging network. Initially targeting the Montréal and Québec metropolitan areas, deployment will be stepped up as more electric vehicles arrive on the market.

Well aware that low-carbon vehicles are part of the solution to the problem of global warming, Hydro-Québec is becoming increasingly involved in the development of electric mobility. Our initiatives in this regard are part of the action plan presented in the *Strategic Plan 2009–2013*, and also fit into the Québec government's *2011–2020 Action Plan for Electric Vehicles*. Much was achieved in this area in 2011: participation in road trial programs, deployment of charging infrastructure, studies and R&D in public transit, and new partnerships and commercial agreements for battery materials and electric motors.

## ROAD TRIALS AND CHARGING INFRASTRUCTURE

- Mitsubishi Canada, the city of Boucherville and Hydro-Québec are continuing Canada's largest all-electric vehicle trial, in which 30 i-MiEVs are being tested under real-world conditions until late 2013. Hydro-Québec has deployed charging stations in Boucherville and is documenting user charging patterns.
- In June 2011, a partnership led by Hydro-Québec and including RONA, Les Rôtisseries St-Hubert, METRO and the Agence métropolitaine de transport (AMT) announced Canada's first network of public charging stations: The Electric Circuit.
- In August, Communauto, one of the largest car-sharing services in North America, added 15 Nissan LEAF all-electric vehicles to its fleet, with 35 more slated for 2012. Hydro-Québec is providing technical and financial support to Communauto for deployment of the necessary charging facilities.
- In the fall, Hydro-Québec added 10 Chevrolet Volts to its fleet, thus broadening its road trials to extended-range vehicles. Among other things, the company intends to assess their potential contribution in reducing greenhouse gas emissions.
- The program to test the Toyota Prius Plug-in Hybrid under real-world conditions ended in September. Hydro-Québec, the Québec government and Université Laval participated in the program, which yielded data on vehicle performance and user habits.

## PUBLIC TRANSIT

- Hydro-Québec is one of the few North American electric utilities to actively contribute technical and financial support to electrification projects run by public transit authorities. In 2011, Hydro-Québec and its partners completed four feasibility studies for projects in the following areas: electrification of commuter trains (AMT); Montréal streetcars (Ville de Montréal and Société de transport de Montréal); airport shuttle (Aéroports de Montréal); and electrification of Montréal's Pie-IX corridor (AMT).

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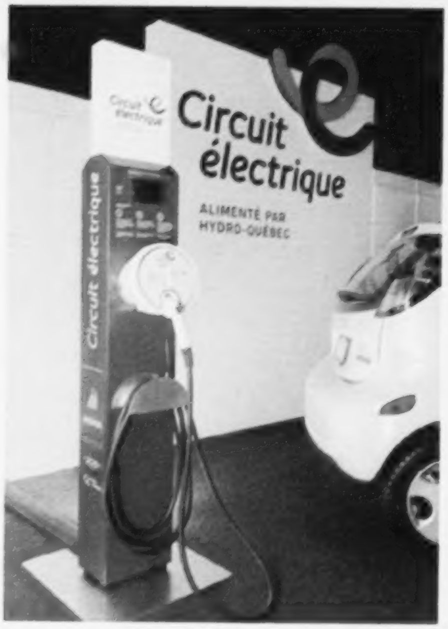

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- In October, the Société de transport de Laval launched the Clic carpooling program in collaboration with the AMT and Hydro-Québec. Ten carpools have been formed, each with four people living in the same neighborhood and commuting to work at the same time. Every carpool is using a Chevrolet Volt to drive to either a designated metro station or a station on the Deux-Montagnes electric commuter train. Participants thus use all-electric means of transportation for their entire commute. It was Hydro-Québec that funded deployment of the charging stations needed for the project.

## ELECTRIC MOTORS

- The MΦtive motor system developed by our TM4 subsidiary is now being tested by Tata Motors Group (India) as part of a demonstration program in Britain called CABLED (Coventry and Birmingham Low Emission Demonstrators).
- The MΦtive system continued to be adopted by other automakers, with nearly 20 new customers in 11 countries since 2010.
- Under a Québec government project to promote a future electric bus built with innovative Québec content, TM4 started developing a powertrain for heavy vehicles.
- TM4 signed an agreement to supply electromagnetic components for hydrokinetic turbines developed by the firm RERHydro.

## INNOVATION SERVING TRANSPORTATION

*Battery materials research, design, development and commercialization are an important aspect of the work of Hydro-Québec's research institute, IREQ. Projects under way deal with the physical components (powders and solvents) of batteries for various applications: personal and mass transportation, cranes for jobsites and container handling, mass storage for power systems or other needs, home and community power supply, etc. In 2011, our work led to significant technological breakthroughs and the signing of commercial agreements and partnering arrangements.*

- Hydro-Québec, Université de Montréal and France's Centre national de la recherche scientifique, co-owners of the rights to key patents for the production of lithium metal phosphates (LMP)—including lithium iron phosphate (LFP)—and their use in lithium-ion batteries, established a new base for the international marketing of these products in conjunction with Süd-Chemie, a German firm. Süd-Chemie has created a Swiss subsidiary, LiFePO4+C Licensing, which can sublicense the patents for LMP production. Contracts have already been signed with two Japanese companies, Sumitomo Osaka Cement and Mitsui Engineering & Shipbuilding, and with two Taiwanese firms, Tatung Fine Chemicals and Advanced Lithium Electrochemistry.
- Hydro-Québec and Covalent Associates (U.S.A.) agreed to pool their patents for ionic liquids with a view to large-scale licensing. Two licences have already been granted in partnership with Covalent. Hydro-Québec reached a similar agreement with Technifin (South Africa) for licensing titanate anodes. In addition, Hydro-Québec granted three licences for the use of other technologies related to rechargeable batteries.
- IREQ conducted promising tests on anodes composed of natural graphite or titanate. The anodes are expected to offer greater energy and power, reduced charging time and increased battery life.
- In collaboration with the Lawrence Berkeley National Laboratory (U.S.A.), IREQ is developing a high-energy-density technology under BATT (Batteries for Advanced Transportation Technologies), a U.S. Department of Energy program. The work involves a silicon anode and a metal oxide cathode coated with a compound having an olivine structure.
- Hydro-Québec filed four new patents for lithium-ion and lithium-air battery materials, and for ultra-fast charging stations.

# A CULTURE OF SUSTAINABILITY

▶ Cree fishermen David Erless Jr. and Willie Weistche catch cisco at the foot of the Smokey Hill rapids in the reduced-flow stretch of the Rupert.

Hydro-Québec's corporate culture is built around sustainability. All our activities integrate the three facets of a responsible approach: environment, society and economy. The same holds true for our main strategic objectives, which revolve around renewable energies, energy efficiency and technological innovation—the three keys to sustainable development in the power industry.

As a government corporation, Hydro-Québec plays its part in carrying out Québec's *Government Sustainable Development Strategy 2008–2013*. Our commitment takes concrete form in our *Sustainable Development Action Plan 2009–2013*, which lays out 10 actions accompanied by targets and performance indicators (for the 2011 results, see page 41).

In March 2011, the Fondation Hydro-Québec pour l'environnement celebrated 10 years of commitment to organizations and groups working to preserve natural areas of heritage interest. Over that time, it allocated nearly $10 million to 160 projects throughout the province.

## AN ENVIRONMENTAL LEADER

*At Hydro-Québec, we make extensive efforts to protect the environment in all our operations and major infrastructure projects. These efforts concern every aspect of our business and take various forms: impact assessments; environmental compliance monitoring during construction; site restoration; air, water and soil preservation; biodiversity protection; archaeological excavations; harmonious integration of facilities; vehicle fleet management with a view to energy efficiency; and recycling and sustainable consumption.*

■ In its 12th global inventory of electricity production from renewable sources, the Observatoire des énergies renouvelables (Observ'ER) cited the Eastmain-1-A/Sarcelle/Rupert project as "a prime example of how to incorporate environmental constraints." Observ'ER is a world reference in renewable energy and sustainable development.

■ The team in charge of the Anne-Hébert substation project (Capitale-Nationale) innovated by developing a 0.4-hectare wetland in a sedimentation basin that was created on the site as a mitigation measure to offset the loss of a natural wetland.

■ As part of the Romaine project, Hydro-Québec began tracking forest-dwelling woodland caribou. Under this initiative, which will run until 2025 and cover an area of 13,615 $km^2$, the caribou population will be inventoried every three years. In the first inventory, conducted in 2009, 239 individuals were counted. In addition, in 2009, 2010 and 2011, a number of females were fitted with radio collars. Telemetric monitoring of these females will yield information on their movements and the ways they use their different habitats. At the time of capture, blood and hair samples were taken, and biometric measurements were made. These details were passed on

to various university research teams and Québec's Ministère des Ressources naturelles et de la Faune. The blood tests showed that all 21 females captured in 2011 were pregnant. Flyovers in June and September 2011 established that the calves of the tagged females had a 48% survival rate, compared with 50% in 2010 and 30% in 2009. The aerial surveys also helped determine the structure of the caribou population. The productivity data and indices gathered to date reveal that this is a fragile population. To help maintain it, we will continue to monitor its condition and apply mitigation measures, particularly during calving season.

■ In the Romaine complex development area, we conducted a third campaign of archaeological digs and surveys in 2011, which included an inventory along the access road to Mista workcamp and the Romaine-4 jobsite; the discovery of a temporary camp dating back over 2,000 years on the right bank of the Ruisseau Mista; a study of traces of human occupation (20th century) discovered by Romaine-2 workers at kilometre point (KP) 92 of the Rivière Romaine; and additional digs on an Aboriginal site at KP 115 that confirmed occupation dating from the historic period, which runs from initial contact with the Europeans in the 16th century until the end of the 19th century.

■ A second composter was installed at Murailles workcamp. By the end of 2011, 46.9 tonnes of food waste and 23.7 tonnes of cardboard had been diverted from landfill. The compost produced will be used to restore the land occupied by the workcamps. In addition, a reclamation system was set up to turn construction wood waste (pallets, formwork, packaging) into chips that will be incorporated into the topsoil used to restore the sites. By reducing the volume of waste transported to the dump, these reclamation measures limit construction-related greenhouse gas emissions.

■ In 2011, the Centre international de solidarité ouvrière (international centre for worker solidarity) conducted a study on the sustainable procurement policies and related disclosure practices of 30 organizations in the Québec public sector. On the basis of five criteria (policy and code of conduct, governance and consultation, management system, results and supplier support measures, and audits), Hydro-Québec ranked third, thanks mainly to the quality of its follow-up on its practices. As well, according to a survey carried out by the Observatoire de la Consommation Responsable at the Université de Sherbrooke and published by *Protégez-Vous* magazine, Hydro-Québec is seen by the public as the second most responsible company.

■ In 2011, four of our vehicle repair shops (Beauport, Chicoutimi, Granby and Mont-Laurier) earned Gold or Silver Level CLÉ VERTE (Green Wrench) environmental certification. CLÉ VERTE recognizes garages that run their operations in keeping with environmental best practices. The certification process is managed by the non-profit organization Nature-Action Québec.

◄ Julie Mollen, from the Innu community of Ekuanitshit, gathers medicinal plants as part of the environmental follow-up for the Romaine project.

▲ As part of an effort to track forest-dwelling caribou in the Romaine study area, a number of females were captured and fitted with radio collars. The goal is to understand caribou behavior and land use.

▲ The Maison du développement durable was inaugurated in October. Built on Hydro-Québec property in downtown Montréal, this centre for sustainable development is a model building designed to LEED Platinum standards. It is occupied by a number of social and environmental organizations. Hydro-Québec is one of the lead partners in this $27-million project.

▶ In Hydro-Québec's stand at the Eureka! Festival, activity leader Emmanuelle Leduc-Bouchard presents a game that involves recognizing different birdsongs.

- In 2011, we replaced 212 of our light-duty vehicles—47% of those replaced during the year—with more energy-efficient models.
- We recycled 1,221 tonnes of paper and cardboard and 12,246 tonnes of metal.
- The insulating oil used in our facilities is systematically decontaminated and regenerated. Our rate of reuse was 89%, comparable to previous years.

## PARTNERSHIP INITIATIVES

*Out of a sense of corporate citizenship and a desire to partner with communities, Hydro-Québec supports many social and environmental initiatives and projects of common interest.*

- In 2011, we signed 178 contracts for public or private use of transmission line rights-of-way: construction of streets or water mains; development of holding basins, public parks and snowmobile trails, etc.
- Under the terms of the *Boumhounan Agreement*, Hydro-Québec and the Niskamoon Corporation signed a financial agreement to set up a college-level environmental technology program in Chibougamau, in order to allow Crees from the Baie-James region to acquire environmental training. Nine students, mostly Crees, were enrolled in the new program in fall 2011.
- In 2011, the Fondation Hydro-Québec pour l'environnement allocated $556,400 to 17 projects in 11 of the province's administrative regions. Examples include: improvements to the Sentier d'un flâneur walking trail in the Espace Félix-Leclerc on Île d'Orléans (Association forestière des deux rives); development of the former Taschereau seigneurial property as an ecological and historical park in Nouvelle-Beauce (Corporation du Domaine du Seigneur Taschereau); and awareness and education activities to protect the Marais de Pointe-au-Père Important Bird Area (IBA) near Rimouski (Sud-de-l'Estuaire ZIP Committee).
- Working in partnership with the Centre québécois d'action sur les changements climatiques, Hydro-Québec provides financial assistance to ENvironnement JEUnesse (Enjeu), an organization that issues a certification called Cégep vert du Québec. This annual certification recognizes Québec colleges that incorporate environmental education into their programs and adopt an environmental management system.
- We granted $18.0 million in donations and sponsorships to support organizations and projects throughout the province. For more information, see our Web site at **www.hydroquebec.com/donations-sponsorships**.

◄ Cree technicians Tommy Guilbeault and Jimmy Wapachee fill the basins at a lake sturgeon hatchery on the Eastmain-1-A jobsite. The fry produced here will be released in the river.

▲ The 300,000th refrigerator in the RECYC-FRIGO Environnement program was picked up on March 17. To mark the event, program manager Johanne Daviau presented a basket of energy-efficient products to the appliance's owner, Bruno Houle.

## HYDRO-QUÉBEC'S SUSTAINABLE DEVELOPMENT ACTION PLAN 2009–2013

The *Sustainable Development Action Plan 2009–2013* lays out a series of actions to protect the environment and promote social and economic development. They are in line with the company's business objectives, which revolve around renewable energies, energy efficiency and technological innovation. The *Sustainability Report 2011* reports in greater detail on the company's progress with respect to the Action Plan.

| | Action | Indicator | Results as at December 31, 2011 |
|---|---|---|---|
| 1 | Build hydropower projects and contribute to the development of wind power. | Capacity and energy available | 650 MW[a] |
| 2 | Increase the capacity of existing hydroelectric generating stations. | Gains in peak capacity | 58 MW[a] |
| 3 | Step up energy efficiency initiatives. | Recurring energy savings | 6.2 TWh[b] |
| 4 | Continue to help low-income customers. | Number of arrangements[c] with low-income customers | 61,255 |
| 5 | Reduce transport-related GHG emissions. | Atmospheric emissions from the vehicle fleet | 56,005 t $CO_2$ eq. |
| 6 | Promote reduction at source, reuse and recycling. | Number of at-source reduction or reclamation programs introduced or optimized | 10[a] |
| 7 | Establish specifications for sustainable procurement. | Number of product purchasing guides that include sustainable specifications | 4[a] |
| 8 | Inform and educate employees regarding sustainability and the company's approach. Help employees learn to apply sustainability principles to their daily activities. | Percentage of employees educated | 75% |
| | | Percentage of employees who have sufficient knowledge about sustainability | 51%[a] |
| 9 | Improve vegetation control methods on the distribution system to better protect biodiversity. | Percentage of vegetation control operations per year with integrated measures for promoting biodiversity | 92% |
| 10 | Organize sustainable events and promote responsible management of events sponsored by Hydro-Québec. | Average number of contributing measures implemented among the 25 measures selected for the sustainable management of events | 16.1/25 |

a) Cumulative results since implementation of the *Sustainable Development Action Plan 2009–2013*.

b) Savings achieved since implementation of the Energy Efficiency Plan in 2003.

c) Including long-term arrangements.

# CREATING WEALTH

▲ Charles Giroux (far left) and Marina Hernandez (centre), from Hydro-Québec's recruitment office, discuss job opportunities with Concordia University students.

With facilities throughout the province, Hydro-Québec contributes to creating wealth in all regions of Québec: first, as an employer, with about 22,500 employees at 150 different locations, but also as a project proponent, through its large-scale investments in developing and modernizing the power system. In 2011 alone, the company invested $3.6 billion in more than 1,400 jobsites, large and small.

A shining example of Québec know-how, Hydro-Québec is an active participant in a number of national and international organizations in the power industry. Under various cooperation projects, we also provide our expertise to developing countries.

## OUR EMPLOYEES' COMMITMENT: AN ESSENTIAL VALUE

*To fulfill its mission, Hydro-Québec must be able to count on motivated, deeply committed employees. That is why we pay such close attention to maintaining a harmonious, safe and healthy work environment. This approach is all the more important as employee retirements continue at a steady pace. To cope with this reality, we are making recruitment, preservation of skills and know-how, and integration and retention of new hires our top priorities. Among other things, we have reviewed our recruitment strategy and taken steps to boost the company's position as an employer of choice in an increasingly competitive labor market. We are also continuing to rely on training programs that focus on skill improvement to help our employees excel in their work. Our efforts have already borne fruit: in a wide-ranging survey of 150 large corporations conducted in 2011 by Randstad Canada, Hydro-Québec was rated one of the country's 10 most attractive employers.*

- The eight collective agreements signed with Hydro-Québec's unions, which will remain in effect until either December 2013 or December 2014, help maintain a harmonious working atmosphere. It should be noted that 84% of the company's employees are unionized.
- Of the 3,127 employees eligible for retirement in 2011, 1,201 left the company, compared with 1,157 out of 3,145 in 2010. In the last five years, over 26% of the permanent workforce has retired. The number of retirements should stabilize in 2012 and then hold steady at over 1,000 until 2014. More than 5,000 employees could retire between 2012 and 2016. In anticipation of this massive change, we have taken measures to preserve and renew the know-how deemed essential for management positions and key jobs in our core businesses. Our actions so far have yielded satisfactory results.
- Our efforts to prepare the next generation of managers and bolster leadership abilities continued in 2011. For example, we introduced a new process for overseeing individual manager performance.

◄ To comply with the latest Standards Council of Canada requirements, Hydro-Québec is gradually replacing the flame-resistant coveralls worn by its workers. The new suits are manufactured in Québec from Québec-made materials.

▲ The first cohort of managers who took the AGIR training, which aims to develop leadership abilities in Hydro-Québec management personnel.

In addition, two leadership development programs were launched, the first for supervisory management (more than 270 participants since 2010) and the second for middle management (35 participants). Through enhanced techniques, we also identified potential candidates for all levels of management.

■ According to a recent survey completed by 14,245 respondents, the overall employee commitment index was 73% in 2011. This new index is an important indicator of the company's performance.

■ In another survey, new hires rated their satisfaction with employee induction and integration procedures at 8.4 out of 10, the same result as in 2010 and 2009. Of the 1,284 new hires in 2011, 69% were under the age of 35.

■ Hydro-Québec is a founding partner of the Institute of Electrical Power Engineering (IEPE). In 2011, we awarded 15 Jean-Jacques-Archambault general scholarships and 31 traveling scholarships to 38 IEPE students, for a total contribution of some $89,300. In all, 162 IEPE graduates—including 18 in 2011—have joined the company's ranks since the Institute was established in 2001.

■ We offered 325 internships to 275 university students in graduate and undergraduate programs. We also took in 48 college-level trainees, most of them enrolled in industrial electronics. Since 2009, the company has provided close to 1,200 internships designed to prepare tomorrow's employees.

■ In 2011, we devoted 3.7% of total payroll to training programs, and 15,834 employees took part in at least one training activity. Even though the accelerated pace of workforce renewal means increased training needs, we were able to reduce training costs.

■ With respect to diversity, we hired 197 new employees belonging to visible minorities in 2011, as part of our ongoing efforts to bring the profile of our workforce into line with the Québec labor force. To promote the emergence of a truly inclusive culture within the company, we have developed various tools for managers and for our human resources team, including training on day-to-day management of diversity. As well, under a special program for young workers, we offered summer internships to six high-school students from visible and ethnic minorities. We also participated in a job fair for people with disabilities, organized by the Comité d'adaptation de la main-d'œuvre (CAMO).

■ Employee health and safety are priority issues for Hydro-Québec. Various health and safety committees bringing together managers, employees and specialists in the field are active at the local, regional and provincial levels to eliminate risks of work-related injuries and disease.

■ We rolled out a plan to replace protective clothing and outerwear for employees likely to be exposed to electric arcs in their work. All these employees will eventually have flame-resistant orange coveralls that will provide better protection against the risk of burns and make them more visible in the field.

■ The frequency of work-related accidents was 2.58 per 200,000 hours worked.

▲ We hold CATIA and SmartTeam software training sessions for our employees and those of our suppliers.

▶ Safety advisor Isabelle Lacasse in conversation with a cable worker at Mont-Royal substation in Montréal.

## A LASTING CONTRIBUTION TO THE ECONOMY

*Hydro-Québec plays an important role in the sustainable growth of the Québec economy. All of the province's regions, including the remotest, receive a share of the wealth created by its day-to-day operations, infrastructure projects, electricity purchases and procurement of goods and services. Every year, its spending and capital investments add up to billions of dollars and generate thousands of jobs. The same held true for 2011, when a number of regions benefited substantially from the company's construction projects.*

■ In 2011, $275 million (financing excluded) was invested in the Eastmain-1-A/Sarcelle/Rupert project. Employment totaled 1,463 person-years, with Cree and Jamesian workers accounting for 10.6% of the workforce.

■ In 2011, $493 million (financing excluded) was invested in the $6.5-billion Romaine project. Employment rose to 1,198 person-years, with Côte-Nord and Innu workers accounting for 50% of the workforce. Contracts awarded in the region totaled $69 million. Between 2012 and 2016, the peak labor force will be in excess of 2,000 workers, most of them from the region.

■ Procurement of goods and services inside and outside Québec totaled $2,913 million[a] in 2011, compared with $2,998 million[a] in 2010:

- □ $1,180 million for the purchase of goods
- □ $27 million for rentals and leasing
- □ $1,267 million for specialized services and other work
- □ $439 million for professional services

■ Goods and services procured from Québec-based companies totaled $2,695 million, or 92.5% of all procurement.

■ The number of jobs in Québec supported by our overall procurement of goods and services is estimated at 19,187, including 12,826 direct jobs.

■ In 2011, our hydroelectric projects[b] sustained 3,065 construction jobs, not including Hydro-Québec employees.

## INTERNATIONAL INFLUENCE

*Hydro-Québec is actively involved in the activities and initiatives of national and international organizations such as the Canadian Hydropower Association, International Hydropower Association, Energy Council of Canada, International Council on Large Electric Systems (CIGRE), Centre Jacques Cartier and Global Sustainable Electricity Partnership (formerly the e8). We also share our know-how with various emerging nations in the French-speaking world under training and cooperation projects.*

■ At the 24th Entretiens du Centre Jacques Cartier, which took place in Ottawa, Montréal and Québec from September 29 to October 6, 2011, Hydro-Québec participated in two conferences: L'hydroélectricité au cœur de la nouvelle donne énergétique (Hydropower at the Heart of the New Energy Order) and La sécurité routière dans les villes de demain (Road Safety in Tomorrow's Cities).

**PROCUREMENT OF GOODS AND SERVICES ($B)**

| **2011** | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|
| **2.9** | 3.0 | 2.9 | 2.7 | 2.6 |

---

a) Excluding procurement by Société d'énergie de la Baie James.

b) Including projects carried out by Société d'énergie de la Baie James.

◀ At the annual gala of the Association pour le développement de la recherche et de l'innovation du Québec (ADRIQ), Denis Faubert, General Manager – IREQ (right), talks with two members of a Université de Sherbrooke team that developed the prototype electric airplane shown in the foreground.

▲ A group of new hires tours Beauharnois generating station as part of their orientation.

## HYDRO-QUÉBEC'S CONTRIBUTION TO THE QUÉBEC ECONOMY

| | **2011** | 2010 |
|---|---|---|
| Dividend ($M) | **1,958** | 1,886 |
| Capital tax ($M)[a] | **–** | 51 |
| Public utilities tax ($M) | **246** | 262 |
| Water-power royalties ($M) | **593** | 557 |
| Municipal, school and other taxes ($M) | **22** | 35 |
| Guarantee fees paid to the shareholder for debt securities ($M) | **188** | 183 |
| Percentage of the value of goods and services procured from Québec-based companies | **92.5** | 91 |
| Direct jobs supported by procurement, including procurement outside Québec (person-years) | **12,826** | 13,750 |
| Contributions and commitments under the Integrated Enhancement Program ($M)[b] | **2.3** | 5.9 |

a) Capital tax was abolished in 2011.

b) Under the company's Integrated Enhancement Program, communities affected by new transmission projects receive grants equivalent to 1% of the value initially approved for facilities covered by this program.

▪ CIGRE Canada held its annual conference from September 6 to 8 in Halifax; the theme was "Promoting Better Interconnected Power Systems." The event was a great success, with some 40 papers presented. The next CIGRE Canada meeting will take place in Montréal, on the theme *Technologies et innovations pour un réseau électrique en mutation* (Technology and Innovation for the Evolving Power Grid).

▪ At its latest summit, in June 2011, the e8 changed its name to Global Sustainable Electricity Partnership, which better reflects the organization's makeup and mission. At the summit, Hydro-Québec confirmed its financial participation in a renewable-energy development project in Patagonia—an initiative of Duke Energy, another member of the Partnership.

▪ In 2011, we were involved in the activities of various technical committees of the International Hydropower Association (IHA). As well, at the IHA's world congress, a Hydro-Québec specialist gave a presentation on the role of hydropower in the effort to combat climate change.

▪ The Fonds Hydro-Québec pour la Francophonie financed activities of the Institut de l'énergie et de l'environnement de la Francophonie and energy-related cooperation projects in Rwanda and Haiti.

▲ At a time when many of our employees are retiring, passing on expertise and know-how is of utmost importance. Cable worker Daniel Lacasse gets ready to cut an electric cable on the Berri–Notre-Dame line using a special saw, while his young colleague Charles Côté-Houle watches and learns.

▶ The Électrium celebrated its 20th anniversary in 2011. Since it first opened, Hydro-Québec's electricity interpretation centre has welcomed more than 444,000 visitors of all ages, including families, professional groups and pupils on field trips.

## REGIONAL SPINOFFS FROM HYDRO-QUÉBEC PROCUREMENT ($'000)[a]

| Administrative region | Procurement of services[b] | Procurement of goods[c] | **Total** |
|---|---|---|---|
| Abitibi-Témiscamingue (08) | 13,429 | 10,340 | **23,769** |
| Bas-Saint-Laurent (01) | 8,464 | 3,989 | **12,453** |
| Capitale-Nationale (03)[d] | 239,698 | 33,517 | **273,215** |
| Centre-du-Québec (17)[d] | 128,008 | 33,689 | **161,697** |
| Chaudière-Appalaches (12)[d] | 107,482 | 28,718 | **136,200** |
| Côte-Nord (09) | 118,977 | 9,172 | **128,149** |
| Estrie (05)[d] | 15,615 | 15,500 | **31,115** |
| Gaspésie–Îles-de-la-Madeleine (11)[d] | 6,062 | 1,022 | **7,084** |
| Lanaudière (14) | 34,064 | 31,287 | **65,351** |
| Laurentides (15) | 30,159 | 13,984 | **44,143** |
| Laval (13) | 235,016 | 35,501 | **270,517** |
| Mauricie (04) | 98,679 | 36,902 | **135,581** |
| Montérégie (16)[d] | 111,737 | 216,569 | **328,306** |
| Montréal (06) | 386,439 | 502,269 | **888,708** |
| Nord-du-Québec (10) | 12,172 | 2,004 | **14,176** |
| Outaouais (07) | 5,100 | 15,794 | **20,894** |
| Saguenay–Lac-Saint-Jean (02)[d] | 131,721 | 21,512 | **153,233** |
| Total | 1,682,822 | 1,011,769 | **2,694,591** |

a) Amounts billed by suppliers located in the region, excluding procurement by Société d'énergie de la Baie James.

b) Specialized services, professional services and other work.

c) Purchases and rentals.

d) In 2011, contracts awarded under Hydro-Québec Distribution's calls for wind power resulted in the following estimated regional spinoffs: Capitale-Nationale, $10 million; Centre-du-Québec, $3 million; Chaudière-Appalaches, $42 million; Estrie, $96 million; Gaspésie–Îles-de-la-Madeleine region and regional county municipality of Matane, $438 million; Montérégie, $44 million; Saguenay–Lac-Saint-Jean, $3 million.

# MANAGEMENT'S DISCUSSION AND ANALYSIS

## FINANCIAL REVIEW

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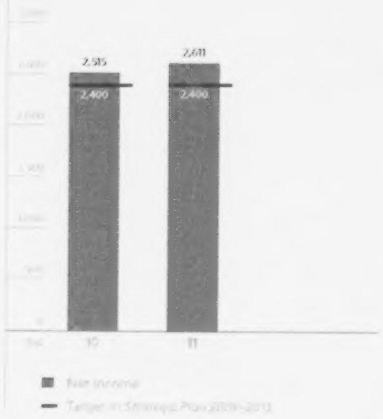
The Management's Discussion and Analysis should be read in conjunction with the consolidated financial statements of Hydro-Québec and the notes thereto. The financial information and tabular amounts presented herein are expressed in Canadian dollars, unless otherwise indicated. The consolidated financial statements reflect the decisions of the Régie de l'énergie.

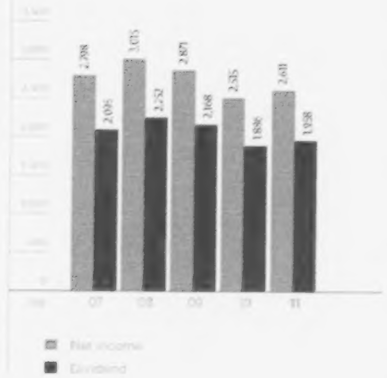
Hydro-Québec would like to point out that this analysis, and especially the Outlook section, contains statements based on estimates and assumptions concerning future results and the course of events. Given the risks and uncertainties inherent in any forward-looking statements, Hydro-Québec's actual future results could differ materially from those anticipated. It should also be noted that certain financial and operating data for previous years have been reclassified to conform to the presentation adopted for the current year. Finally, the information contained herein takes into account any significant event that occurred on or before the date of publication of this Annual Report.

# Overview

NET INCOME



NET INCOME AND DIVIDEND



Hydro-Québec earned **net income** of $2,611 million in 2011, exceeding the $2,400-million target in the *Strategic Plan 2009–2013*. A number of factors account for this good performance. Net electricity exports by Hydro-Québec Production increased, despite the appreciation of the Canadian dollar and lower prices on energy markets in northeastern North America. Electricity sales in Québec increased due to higher demand, mainly in the residential sector. Finally, strict management enabled the company not only to absorb the impact of inflation, indexing and growth in activities, but also to reduce operating expenses.

Net income increased by $96 million over $2,515 million in 2010. Net electricity exports totaled $1,134 million, or $100 million more than the $1,034 million recorded a year earlier. This difference is the result of a $40-million increase in electricity sales reflecting the combined effect of volume growth of 3.4 TWh, which had a $227-million positive impact, and lower energy prices, which had a $187-million negative impact. In addition, short-term electricity purchases decreased by $209 million because of a 4.8-TWh reduction in volume. It should be remembered that, in 2010, Hydro-Québec Production had bought more power to offset the effect of precipitation levels considerably lower than the historic mean across the entire hydroelectric generating fleet. On the other hand, the appreciation of the Canadian dollar had a $147-million negative impact. Foreign currency hedging operations generated an $82-million gain in 2011 after an unusually high gain of $185 million in 2010.

**Revenue** totaled $12,392 million, a $92-million decrease from the $12,484 million recorded in 2010. Revenue from electricity sales amounted to $12,119 million, compared to $12,019 million in 2010: it increased by $214 million in Québec and decreased by $114 million outside Québec. Other revenue was $273 million, compared to $465 million in 2010.

**Total expenditure** was $7,284 million, or $159 million less than in 2010. The difference is due to an $89-million decrease in current operating expenses as a result of strict management, a $166-million reduction in electricity and fuel purchases and the abolition, in 2011, of the capital tax, which resulted in a positive variance of $51 million. These items were partly offset by a $58-million increase in depreciation and amortization expense and an $81-million increase in pension expense, mainly due to the actuarial impact of the reduction in long-term interest rates on capital markets. Water-power royalties increased by $37 million over 2010.

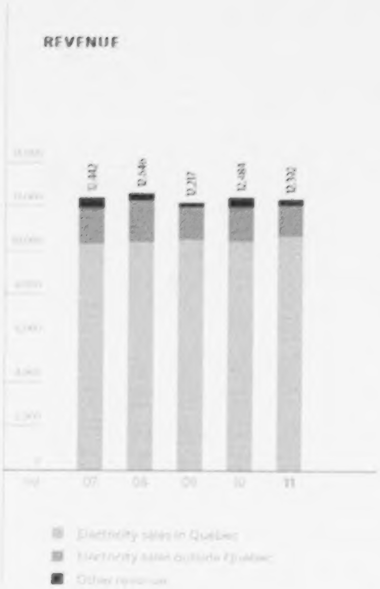
**Financial expenses** amounted to $2,497 million in 2011, comparable to the $2,526 million recorded in 2010.

**Return on equity** was 14.0% in 2011, reflecting Hydro-Québec's good financial performance.

**Cash from operating activities** totaled $5.2 billion. This cash allowed the company, among other things, to pay the 2010 dividend of $1,886 million and to finance a large portion of its investment program, which reached $3.8 billion in 2011, compared to $4.2 billion in 2010.

The **dividend** for 2011 amounts to $1,958 million.

# Consolidated Results



Revenue totaled $12,392 million, compared to $12,484 million in 2010. Revenue from electricity sales increased by $100 million to $12,119 million. Sales in Québec accounted for $10,720 million of this amount, or $214 million more than in 2010. On markets outside Québec, revenue from electricity sales totaled $1,399 million, a decrease of $114 million. Other revenue totaled $273 million, compared to $465 million in 2010.

The $214-million increase in revenue from electricity sales in Québec resulted mainly from volume growth of 2.1 TWh due to more normal winter temperatures in 2011, whereas they had been exceptionally mild in 2010, as well as a 1.7-TWh increase in demand from residential customers.

The $114-million decrease in revenue from electricity sales on markets outside Québec resulted from lower export revenue from Hydro-Québec Production. The 3.4-TWh increase in sales volume, partly offset by the impact of lower prices on energy markets in northeastern North America, was counterbalanced by the negative impact of the appreciation of the Canadian dollar.

Other revenue totaled $273 million, a decrease of $192 million from 2010, mainly due to differences in the amounts recognized as revenue variances related to climate conditions and variances in the annual cost of native-load transmission service, in supply costs for electricity in excess of the heritage pool and in pension costs. These variances led to the recognition of a $51-million liability in 2011, compared to a $184-million asset in 2010. This $235-million negative change was mitigated by revenue of $26 million generated by the granting of sublicences for the use of lithium metal phosphates in the manufacture of rechargeable batteries.

Total expenditure was $7,284 million, or $159 million less than in 2010.

Operating expenses amounted to $2,571 million, or $8 million less than in 2010. The efficiency gains achieved within the company made it possible not only to absorb the impact of inflation and annual indexing as well as the additional expenses associated with growth in activities, notably as of result of the commissioning of new generating, transmission and distribution equipment, but also to reduce current operating expenses by $89 million. Pension expense increased by $81 million, mainly because of the actuarial impact of the reduction in long-term interest rates on capital markets.

Electricity and fuel purchases totaled $1,224 million in 2011, compared to $1,390 million in 2010, a $166-million decrease due mainly to a $216-million reduction in short-term electricity purchases related to exports by Hydro-Québec Production. It should be remembered that, in 2010, the division had bought more power to offset the effect of precipitation levels considerably lower than the historic mean across the entire hydroelectric generating fleet. Electricity purchases by Hydro-Québec Distribution increased by $41 million, among other things because winter temperatures were closer to normal in 2011, whereas they had been exceptionally mild in 2010.

Depreciation and amortization expense amounted to $2,623 million, an increase of $58 million over 2010. The difference is due to a $126-million increase in the depreciation of property, plant and equipment as a result of the commissioning of certain capital assets, including the first generating unit at Eastmain-1-A powerhouse, in June 2011, as well as the definitive shutdown of Tracy generating station during the year. The amortization expense related to regulatory assets, recognized in accordance with the conditions established by the Régie de l'énergie, decreased by $74 million, mainly as a result of the $51 million of amortization in 2010 in connection with the net costs associated with retirement of property, plant and equipment at Des Cantons substation. It should be noted that amortization of regulatory assets was taken into account in setting the electricity transmission and distribution rates.

Taxes were $866 million, compared to $909 million in 2010. This decrease resulted from the abolition of the capital tax in 2011, among other things. This item was partly offset, however, by an increase in water-power royalties paid by Hydro-Québec Production, because of higher output and the indexing of royalty rates.

Financial expenses totaled $2,497 million in 2011, comparable to the $2,526 million recorded in 2010.

| | 2011 | 2010 |
|---|---|---|
| **OPERATIONS AND DIVIDEND ($M)** | | |
| Revenue | **12,392** | 12,484 |
| Operating income | **5,108** | 5,041 |
| Net income | **2,611** | 2,515 |
| Dividend | **1,958** | 1,886 |
| **BALANCE SHEETS ($M)** | | |
| Total assets | **69,637** | 65,809 |
| Property, plant and equipment | **56,901** | 55,537 |
| Long-term debt, including current portion and perpetual debt | **42,050** | 38,660 |
| Equity | **18,834** | 18,566 |
| **FINANCIAL RATIOS** | | |
| Interest coverage | **1.99** | 1.92 |
| Return on equity (%) | **14.0** | 14.0 |
| Profit margin (%) | **21.1** | 20.1 |
| Capitalization (%) | **31.0** | 32.1 |
| Self-financing (%) | **47.6** | 46.8 |

Note: Certain comparative figures have been reclassified to conform to the presentation adopted in the current year.

# Financial Position

## OPERATING ACTIVITIES

Cash from operating activities totaled $5.2 billion in 2011, compared to $4.6 billion in 2010. These funds were mainly used to pay the dividend for 2010 and to finance a large portion of the investment program.

## INVESTING ACTIVITIES

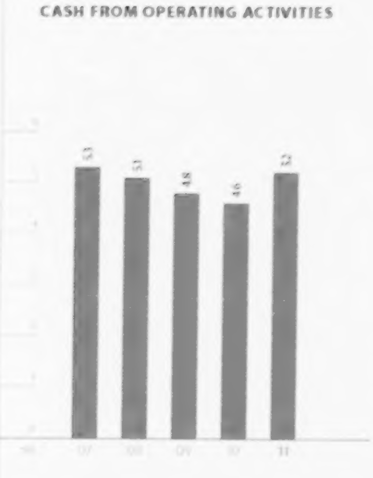
In 2011, Hydro-Québec invested $3.8 billion in property, plant and equipment and intangible assets including the Energy Efficiency Plan (EEP), compared to $4.2 billion in 2010. Of this total, $1.8 billion was invested in development projects and $1.8 billion in maintaining or improving asset quality, while $0.2 billion went to the EEP.

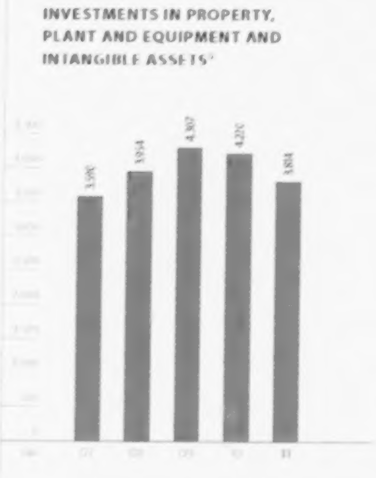
Hydro-Québec Production invested a total of $1,467 million in 2011, compared to $1,900 million in 2010. As expected, a large portion of this amount, $951 million, went to the division's development projects such as Eastmain-1-A/Sarcelle/Rupert and the Romaine complex. The amounts allocated to ongoing asset maintenance and improvement totaled $516 million. For example, rehabilitation and refurbishment continued at Beauharnois generating station, the Manicouagan complex and La Tuque dam in 2011.

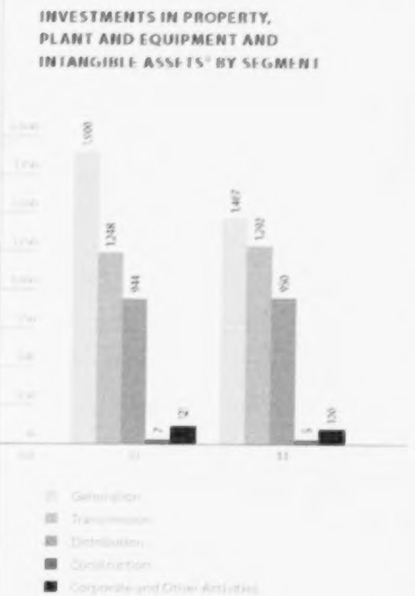
Capital spending at Hydro-Québec TransÉnergie totaled $1,292 million in 2011, 36% of which was used to increase transmission capacity and integrate the output from new hydroelectric and wind power facilities. These projects include connecting Eastmain-1-A and Sarcelle powerhouses and the ongoing work to integrate output from wind farms built in response to Hydro-Québec Distribution's calls for tenders. The remainder was devoted to long-term transmission system operability, including the project to upgrade the main transmission system.

Hydro-Québec Distribution invested $733 million to handle its growing customer base, ensure the long-term operability of the distribution system and enhance service quality. An additional $217 million was allocated to the EEP.

Hydro-Québec Équipement et services partagés and Société d'énergie de la Baie James carry out engineering, construction and refurbishment projects for Hydro-Québec Production and Hydro-Québec TransÉnergie. In addition, Hydro-Québec Équipement et services partagés offers company-wide shared services that include procurement of goods and services, real estate management, document management, material management and transportation, food and accommodation services.


CASH FROM OPERATING ACTIVITIES


INVESTMENTS IN PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS[a]


INVESTMENTS IN PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS[a] BY SEGMENT

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a) Including the Energy Efficiency Plan.

## FINANCING ACTIVITIES

In 2011, Hydro-Québec's financing activities raised $4.6 billion on the Canadian and global markets.

In the first half of the year, the company issued variable-rate notes for a total amount of $2.0 billion, maturing in February 2015. In addition, fixed-rate financing transactions conducted in January, September and November, which mature in February 2050, raised $1.6 billion. These transactions were carried out on the Canadian market.

Hydro-Québec also took advantage of favorable market conditions to issue securities denominated in U.S. dollars, a first since 2001. In June, it floated a US$1.0 billion debenture issue on the global market, bearing interest at 2.00% and maturing in June 2016. This transaction enabled the company to diversify its investor base.

The proceeds were used to support part of the investment program and refinance maturing debt.

## SOURCES OF FINANCING

| Type of financing | Amount authorized by the Board of Directors | Market | Outstanding as at December 31, 2011 |
|---|---|---|---|
| Credit lines | C$500 million[a] or US$500 million[a] | | C$1 million |
| Credit facility[b] | US$2,000 million | | – |
| Commercial paper[b] | US$3,500 million or equivalent in C$ | United States or Canada | C$16 million |
| Medium-term notes[b] | US$3,000 million or equivalent in other currencies<br>C$20,000 million or equivalent in US$ | United States<br>Canada | US$340 million[c]<br>C$14,283 million[c] |

a) Of this amount, $397 million is covered by operating credit line agreements with financial institutions.

b) Guaranteed by the Québec government.

c) Corresponds to net proceeds from the issue of medium-term notes.

## CREDIT RATINGS

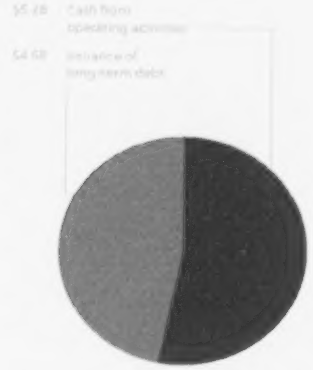
| | 2011 | | | 2010 | | |
|---|---|---|---|---|---|---|
| | Commercial paper | Long-term | Outlook/ Trend | Commercial paper | Long-term | Outlook/ Trend |
| U.S. agencies | | | | | | |
| Moody's | **P-1** | **Aa2** | **Stable** | P-1 | Aa2 | Stable |
| Fitch Ratings | **F1+** | **AA-** | **Stable** | F1+ | AA- | Stable |
| Standard & Poor's | **A-1+** | **A+** | **N/A**[a] | A-1+ | A+ | N/A[a] |
| Canadian agency | | | | | | |
| DBRS | **R-1 (middle)** | **A (high)** | **Stable** | R-1 (middle) | A (high) | Stable |

a) Standard & Poor's does not provide an outlook for Hydro-Québec's credit rating. However, it has given the Québec government, Hydro-Québec's shareholder and guarantor, a "stable" outlook.

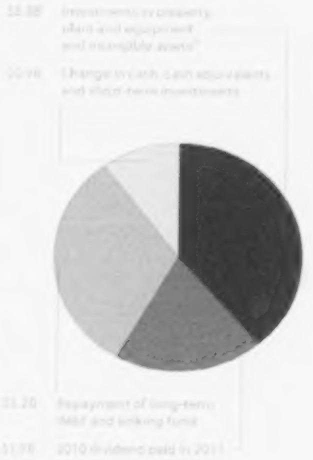
## DIVIDEND AND CAPITALIZATION RATE

The dividend for 2011 amounts to $1,958 million. Once this dividend is factored in, the capitalization rate was 31.0% as at December 31, 2011.

**SOURCES OF FUNDS IN 2011**



**USES OF FUNDS IN 2011**



a) Including the Energy Efficiency Plan.

## Segmented Information

As in 2010, Hydro-Québec had four operating segments in 2011, namely Generation, Transmission, Distribution and Construction, as well as activities grouped under Corporate and Other Activities.

| | | | | | | 2011 |
|---|---|---|---|---|---|---|
| Segmented financial information ($M) | Generation | Transmission | Distribution | Construction | Corporate and Other Activities | Hydro-Québec[a] |
| Revenue | **6,496** | **3,089** | **10,751** | **2,122** | **1,445** | **12,392** |
| Net income | **1,690** | **435** | **374** | **–** | **109** | **2,611** |
| Total assets | **31,661** | **18,483** | **12,983** | **398** | **6,343** | **69,637** |

| | | | | | | 2010 |
|---|---|---|---|---|---|---|
| Segmented financial information ($M) | Generation | Transmission | Distribution | Construction | Corporate and Other Activities | Hydro-Québec[a] |
| Revenue | 6,535 | 3,089 | 10,775 | 2,607 | 1,393 | 12,484 |
| Net income (loss) | 1,605 | 447 | 453 | – | (2) | 2,515 |
| Total assets | 30,609 | 18,072 | 12,700 | 449 | 4,307 | 65,809 |

a) Includes the intersegment eliminations presented in Note 23 to the consolidated financial statements.

Note: Certain comparative figures have been reclassified to conform to the presentation adopted in the current year.

### SEGMENT HIGHLIGHTS

The **Generation** segment recorded net income of $1,690 million, compared to $1,605 million in 2010, an increase of $85 million. Net electricity exports totaled $1,134 million, or $100 million more than the $1,034 million recorded a year earlier. This difference is the result of a $40-million increase in electricity sales reflecting the combined effect of volume growth of 3.4 TWh, which had a $227-million positive impact, and lower energy prices, which had a $187-million negative impact. In addition, short-term electricity purchases decreased by $209 million because of a 4.8-TWh reduction in volume. On the other hand, the appreciation of the Canadian dollar had a $147-million negative impact. Foreign currency hedging operations generated an $82-million gain in 2011 after an unusually high gain of $185 million in 2010.

Electricity sales to Hydro-Québec Distribution increased by $86 million over the $4,735 million recorded in 2010, mainly because of colder temperatures in winter 2011. Net income from special contracts signed with certain large industrial customers in Québec increased by $13 million, due to the more favorable effect of hedging operations in 2011 than in 2010. Depreciation and amortization expense increased by $100 million over 2010, in large part because of the definitive shutdown of Tracy generating station during the year. Water-power royalties amounted to $598 million in 2011, compared to $561 million in 2010, an increase of $37 million resulting from higher output and the indexing of royalty rates.

The **Transmission** segment recorded net income of $435 million, a decrease of $12 million from $447 million in 2010. Revenue from native-load transmission service and revenue from point-to-point transmission services provided to Hydro-Québec Production decreased by $6 million and $5 million, respectively.

The **Distribution** segment recorded net income of $374 million, compared to $453 million in 2010, a decrease of $79 million. Revenue from electricity sales increased on account of colder temperatures in winter 2011 and higher demand in the residential sector. This increase was offset by revenue variances related to climate conditions and variances in the annual cost of native-load transmission service, in supply costs for electricity in excess of the heritage pool and in pension costs. In addition, net electricity purchases, which are net of transmission costs, increased over 2010.

The **Construction** segment recorded a volume of activity of $2,122 million, compared to $2,607 million in 2010. As in 2010, this high volume stemmed from work on several major projects.

# Generation

## Hydro-Québec Production

- **HQ Energy Marketing Inc.** 100%
  - **H.Q. Energy Services (U.S.) Inc.** 100%
  - **Hydro Renewable Energy Inc.** 100%
  - **Bucksport Energy LLC** 69.44%
- **HQ Manicouagan inc.** 100%
  - **Manicouagan Power Limited Partnership** 60%
- **Gestion Production HQ inc.** 100%
- **Société en commandite Betsiamites** 86.31%
- **Churchill Falls (Labrador) Corporation Limited** 34.2%

☐ Hydro-Québec division

■ Subsidiary, joint venture or interest held by Hydro-Québec and under the responsibility of Hydro-Québec Production.

Under the *Act respecting the Régie de l'énergie*, Hydro-Québec Production is required to provide Hydro-Québec Distribution with up to 165 TWh a year of heritage pool electricity. The division sells its excess output on deregulated markets in northeastern North America, including Québec, at market prices. It may also compete for contracts under Hydro-Québec Distribution's open tendering process.

The division operates 63 generating stations. Its capital projects serve a twofold objective: to ensure the long-term operability of existing facilities and to continue development of Québec's hydroelectric potential.

### OPERATING RESULTS

Hydro-Québec Production recorded net income of $1,690 million, compared to $1,605 million in 2010, an increase of $85 million. Net electricity exports totaled $1,134 million, or $100 million more than the $1,034 million recorded a year earlier. This difference is the result of a $40-million increase in electricity sales reflecting the combined effect of volume growth of 3.4 TWh, which had a $227-million positive impact, and lower energy prices, which had a $187-million negative impact. In addition, short-term electricity purchases decreased by $209 million because of a 4.8-TWh reduction in volume. On the other hand, the appreciation of the Canadian dollar had a $147-million negative impact. Foreign currency hedging operations generated an $82-million gain in 2011 after an unusually high gain of $185 million in 2010.

Electricity sales to Hydro-Québec Distribution increased by $86 million over the $4,735 million recorded in 2010, mainly because of colder temperatures in winter 2011. Net income from special contracts signed with certain large industrial customers in Québec increased by $13 million, due to the more favorable effect of hedging operations in 2011 than in 2010. Depreciation and amortization expense increased by $100 million over 2010, in large part because of the definitive shutdown of Tracy generating station during the year. Water-power royalties amounted to $598 million in 2011, compared to $561 million in 2010, an increase of $37 million resulting from higher output and the indexing of royalty rates.

### ELECTRICITY SALES IN QUÉBEC

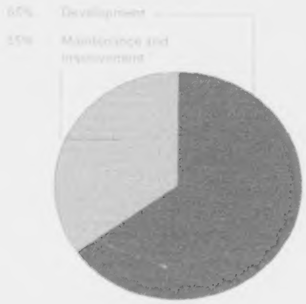
#### *SALES TO HYDRO-QUÉBEC DISTRIBUTION*

In 2011, the total volume of electricity sales to Hydro-Québec Distribution was 168.6 TWh, compared to 167.6 TWh in 2010, an increase of 1.0 TWh. Revenue generated by these sales increased by $86 million to $4,821 million, mainly because of colder temperatures in winter 2011 and higher demand from residential customers.

#### *SPECIAL CONTRACTS BETWEEN HYDRO-QUÉBEC DISTRIBUTION AND CERTAIN LARGE INDUSTRIAL CUSTOMERS*

The risks related to Hydro-Québec Distribution's special contracts with certain large industrial customers in Québec are absorbed by Hydro-Québec Production. In 2011, special contracts had a $159-million negative impact on net income, comparable to the level in 2010. On the other hand, hedging operations carried out by the company, as part of its risk management strategy related to aluminum prices and exchange rates, generated a $227-million positive impact in 2011, compared to $214 million in 2010.

**BREAKDOWN OF 2011 INVESTMENTS BY HYDRO-QUÉBEC PRODUCTION**



## ELECTRICITY SALES OUTSIDE QUÉBEC

Electricity sales outside Québec amounted to $1,397 million for 26.7 TWh in 2011, compared to $1,513 million for 23.3 TWh in 2010. Short-term electricity sales generated $1,143 million for 24.1 TWh, compared to $1,266 million for 20.6 TWh in 2010.

Taking short-term electricity purchases into account, net electricity exports generated $1,134 million in 2011 for a net reservoir drawdown of 20.8 TWh, compared to $1,034 million for 12.6 TWh in 2010. This represented a unit contribution of 5.4¢/kWh in 2011, against 8.2¢/kWh in 2010. The decrease is due to the appreciation of the Canadian dollar, the lower volume of short-term purchase/resale transactions and lower prices on energy markets.

As at December 31, 2011, reservoir storage stood at 102.8 TWh, compared to 99.4 TWh a year earlier. Reservoir storage continues to fully meet the criteria set for management of risks related to the security of the energy supply.

## ELECTRICITY AND FUEL PURCHASES

Electricity and fuel purchases totaled $1,190 million in 2011, a decrease of $253 million from $1,443 million in 2010, due to a reduction in purchase volume. Specifically, short-term purchases related to electricity exports amounted to $254 million for 5.1 TWh, compared to $470 million for 9.9 TWh in 2010. It should be remembered that, in 2010, Hydro-Québec Production had bought more power to offset the effect of precipitation levels considerably lower than the historic mean across the entire hydroelectric generating fleet.

## DEPRECIATION AND AMORTIZATION

Depreciation and amortization expense totaled $825 million, compared to $725 million in 2010, a $100-million increase. This increase is mainly due to the commissioning of capital assets, including the first generating unit at Eastmain-1-A powerhouse, in June 2011, as well as the definitive shutdown of Tracy generating station during the year.

## INVESTING ACTIVITIES

Investments in property, plant and equipment and intangible assets affecting cash totaled $1,467 million in 2011. Of this amount, $951 million went toward hydroelectric development activities, mainly work on the Eastmain-1-A, Sarcelle and Romaine jobsites.

Hydro-Québec Production also invested $516 million in refitting and asset sustainment initiatives. Work included rehabilitation and refurbishment at Beauharnois generating station, the Manicouagan complex and La Tuque dam.

# Transmission

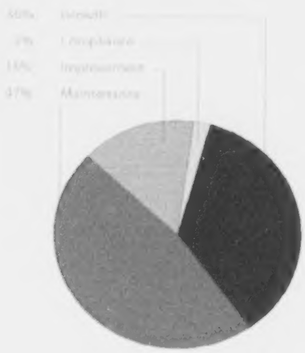
**Hydro-Québec TransÉnergie**

**Cedars Rapids Transmission Company, Limited** 100%

☐ Hydro-Québec division

▨ Subsidiary held by Hydro-Québec and under the responsibility of Hydro-Québec TransÉnergie

**BREAKDOWN OF 2011 INVESTMENTS BY HYDRO-QUÉBEC TRANSÉNERGIE**



Hydro-Québec TransÉnergie operates and develops Hydro-Québec's power transmission system. It markets system capacity and manages power flows throughout Québec.

The operations of Hydro-Québec TransÉnergie are regulated by the Régie de l'énergie.

## RATE CASE

For 2011, the revenue authorized by the Régie de l'énergie for transmission rate-setting purposes totaled $3,009 million, including $2,645 million in native-load transmission revenue (representing a $6-million decrease from 2010) and $364 million for short- and long-term point-to-point transmission services.

## OPERATING RESULTS

Hydro-Québec TransÉnergie recorded net income of $435 million, a $12-million decrease from $447 million in 2010. Revenue from native-load transmission service and revenue from point-to-point transmission services provided to Hydro-Québec Production decreased by $6 million and $5 million, respectively.

## INVESTING ACTIVITIES

In 2011, Hydro-Québec TransÉnergie invested $1,292 million in property, plant and equipment and intangible assets affecting cash, namely $460 million for growth projects and $832 million for asset sustainment projects. The purpose of growth projects is to increase transmission capacity and bring new hydropower plants and wind farms onto the grid. The asset sustainment projects involve maintaining facilities, improving service quality and complying with the legal and regulatory requirements for operating a power transmission system.

Under growth projects, the division invested $114 million and $49 million, respectively, in integrating output from wind farms related to Hydro-Québec Distribution's calls for tenders in 2003 (1,000 MW) and 2005 (2,000 MW). It also devoted $56 million to completing the work to connect Eastmain-1-A and Sarcelle powerhouses.

Under asset sustainment projects, which represented 64% of the division's investments in 2011, Hydro-Québec TransÉnergie devoted $616 million to replacing assets. It also invested $193 million in improving service quality, including $116 million for the project to upgrade the main transmission system.

# Distribution

**Hydro-Québec Distribution**

☐ Hydro-Québec division

Hydro-Québec Distribution provides electricity to the Québec market and delivers reliable power and quality services to its customers with a view to efficiency and sustainable development. In this context, it also promotes energy-saving measures among its customers.

The division's activities are regulated by the Régie de l'énergie, which has exclusive jurisdiction to set electricity rates.

## RATE CASES

In March 2011, the Régie de l'énergie approved an across-the-board electricity rate decrease of 0.41%, effective April 1, 2011. In March 2012, it authorized an across-the-board rate decrease on the order of 0.5% for the period from April 1, 2012, to March 31, 2013.

## SUPPLYING THE QUÉBEC MARKET

Hydro-Québec Distribution relies on various sources to supply the Québec market. To meet requirements in excess of the heritage pool (165 TWh) reserved for it by Hydro-Québec Production, the division issues short- and long-term calls for tenders. For requirements of less than three months, it may also buy electricity directly on the market, without tendering, under an authorization granted by the Régie de l'énergie. For unforeseen needs that cannot be met otherwise, the division relies on a framework agreement with Hydro-Québec Production that covers the period from January 1, 2009, to December 31, 2013. The agreement was approved by the Régie in 2009.

In October 2011, the Régie de l'énergie approved the Electricity Supply Plan 2011–2020, which was submitted by Hydro-Québec Distribution in 2010. This plan is based on the demand forecast for the Québec market over a 10-year period. Energy requirements are expected to increase by nearly 13 TWh over that period.

Finally, Hydro-Québec Distribution is continuing its efforts to promote energy efficiency. In 2011, its programs generated new energy savings of 995 GWh, for a total of 6.2 TWh of annual savings achieved to date. The division has a target of 11 TWh by 2015.

## OPERATING RESULTS

Hydro-Québec Distribution recorded net income of $374 million, compared to $453 million in 2010, a decrease of $79 million. Revenue from electricity sales increased on account of colder temperatures in winter 2011 and higher demand in the residential sector. This increase was offset by revenue variances related to climate conditions and variances in the annual cost of native-load transmission service, in supply costs for electricity in excess of the heritage pool and in pension costs. In addition, net electricity purchases, which are net of transmission costs, increased over 2010.

## ELECTRICITY SALES IN QUÉBEC BY CATEGORY

| | Sales volume | | | Sales revenue | | |
|---|---|---|---|---|---|---|
| | **2011** | 2011–2010 change | | **2011** | 2011–2010 change | |
| Customer category | TWh | TWh | % | $M | $M | % |
| Residential and farm | **62.7** | 3.2 | 5.4 | **4,536** | 234 | 5.4 |
| Commercial and institutional | **33.6** | (0.3) | (0.9) | **2,599** | (49) | (1.9) |
| Industrial | **67.6** | (0.8) | (1.2) | **3,262** | 77 | 2.4 |
| Other | **5.3** | 0.2 | 3.9 | **291** | 9 | 3.2 |
| Total | **169.2** | 2.3 | 1.4 | **10,688** | 271 | 2.6 |

## FACTORS IN THE 2011–2010 CHANGE IN SALES BY CATEGORY

| | Volume effects | | | | | Price effects | | | **Total** |
|---|---|---|---|---|---|---|---|---|---|
| | Baseload demand | | Temperatures | | **Total** | Rate adjust-ments | Other | **Total** | |
| Customer category | TWh | $M | TWh | $M | $M | $M | $M | $M | $M |
| Residential and farm | 1.7 | 126 | 1.5 | 119 | **245** | (7) | (4) | **(11)** | **234** |
| Commercial and institutional | (0.8) | (105) | 0.5 | 27 | **(78)** | (5) | 34 | **29** | **(49)** |
| Industrial | (0.8) | 3 | – | 2 | **5** | (3) | 75 | **72** | **77** |
| Other | 0.1 | 3 | 0.1 | 2 | **5** | – | 4 | **4** | **9** |
| Total | 0.2 | 27 | 2.1 | 150 | **177** | (15) | 109 | **94** | **271** |

### ELECTRICITY SALES IN QUÉBEC

Revenue from electricity sales totaled $10,688 million, a $271-million increase over 2010 due to colder temperatures in winter 2011 and higher demand in the residential sector.

Sales volume rose by 2.3 TWh to 169.2 TWh, compared to 166.9 TWh in 2010, essentially as a result of a 2.1-TWh increase in volume because winter temperatures were closer to normal in 2011, whereas they had been exceptionally mild in 2010, and a 1.7-TWh increase in demand from residential customers, mostly due to growth in the number of accounts.

### OTHER REVENUE

Other revenue decreased by $300 million from the $288 million recorded in 2010. The change in amounts recognized in connection with revenue variances related to climate conditions and variances in the annual cost of native-load transmission service, in supply costs for electricity in excess of the heritage pool and in pension costs decreased other revenue by $240 million.

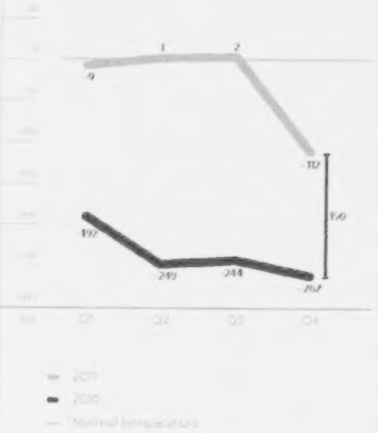
Revenue variances related to climate conditions correspond to differences between Hydro-Québec Distribution's actual transmission and distribution revenue and the revenue forecasts established on the basis of the climate normal for rate application purposes. A $61-million asset was recognized in this regard in 2011, compared to $144 million in 2010, for a negative change of $83 million. This is because winter temperatures were closer to normal in 2011, whereas they had been exceptionally mild in 2010.

Variances in the annual cost of native-load transmission service are the result of changes in cost that have not been taken into account in the setting of electricity rates. A $46-million liability was recorded in this regard in 2011, compared to a $16-million asset in 2010, resulting in a negative change of $62 million.

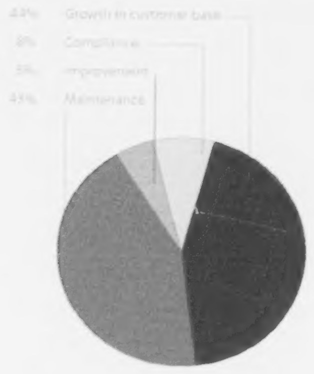
As for variances in supply costs for electricity in excess of the heritage pool, a $3-million liability was recorded in 2011 to take into account the fact that the actual supply costs were lower than the costs forecasted for the purpose of rate-setting by the Régie de l'énergie. In 2010, a $56-million asset was recognized in this regard, resulting in a negative change of $59 million.

Lastly, a $32-million liability was recognized in 2011 for variances in pension costs given that the actual related costs for the year were lower than in the rate case.

**CUMULATIVE IMPACT OF TEMPERATURES COMPARED TO NORMAL**



**BREAKDOWN OF 2011 INVESTMENTS BY HYDRO-QUÉBEC DISTRIBUTION (EXCLUDING THE EEP[a])**



a) EEP: Energy Efficiency Plan

## ELECTRICITY PURCHASES AND TRANSMISSION COSTS

Net electricity purchases increased by $166 million over 2010 because of colder temperatures in winter 2011 and higher demand from residential customers.

The cost of native-load transmission service decreased by $6 million in 2011. It should also be noted that Hydro-Québec Distribution annually adjusts its transmission costs to factor in the recognition of Hydro-Québec TransÉnergie's variance account for revenue from point-to-point transmission services. In 2011, a $47-million reduction was recorded in this regard, compared to a $2-million reduction in 2010, resulting in a positive change of $45 million.

## DEPRECIATION AND AMORTIZATION

Depreciation and amortization expense totaled $751 million, compared to $817 million in 2010, a $66-million decrease due mainly to a $45-million reduction in depreciation for property, plant and equipment. This reduction is due, among other things, to the revision of the useful life of certain distribution equipment.

## INVESTING ACTIVITIES

In 2011, Hydro-Québec Distribution's investments in property, plant and equipment and intangible assets affecting cash totaled $950 million.

Of this amount, $326 million went toward handling the growth of its Québec customer base, including $208 million for new customer hookups. The division also invested $312 million in distribution system asset sustainment and $36 million to improve service quality, including $27 million for the distribution automation program, which will permit remote monitoring of equipment and improvements in system reliability indicators.

Hydro-Québec Distribution also invested $217 million in the Energy Efficiency Plan.

# Construction

**Hydro-Québec Équipement et services partagés**

**Société d'énergie de la Baie James** **100%**

☐ Hydro-Québec division

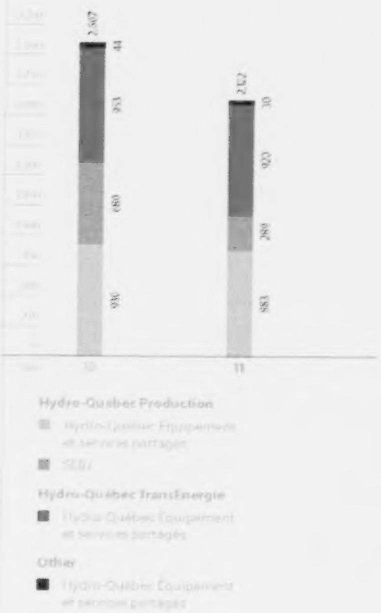
■ Subsidiary held by Hydro-Québec and under the responsibility of Hydro-Québec Équipement et services partagés

The Construction segment includes activities related to the projects carried out by Hydro-Québec Équipement et services partagés[A] and by Société d'énergie de la Baie James (SEBJ).

Hydro-Québec Équipement et services partagés is responsible for construction and refurbishment projects throughout Québec, except in the territory governed by the *James Bay and Northern Québec Agreement* (JBNQA). SEBJ builds generating facilities in the territory governed by the JBNQA (north of the 49th parallel) and may carry out certain projects outside Québec.

As engineering and environmental specialists, Hydro-Québec Équipement et services partagés and SEBJ also offer Hydro-Québec Production and Hydro-Québec TransÉnergie a variety of services needed for draft-design studies, impact assessments and other undertakings in the context of energy-related projects. These services include technical and scientific surveys, planning, cost estimates, design, architecture, geomatics and quality control.

**BREAKDOWN OF CONSTRUCTION SEGMENT ACTIVITIES**



## VOLUME OF ACTIVITY

Hydro-Québec Équipement et services partagés and SEBJ carried out activities amounting to a total of $2,122 million in 2011, compared to $2,607 million in the previous year. As in 2010, the high volume can be attributed to several large-scale projects. Work done for Hydro-Québec Production totaled $1,172 million, compared to $1,610 million in 2010, while work done for Hydro-Québec TransÉnergie totaled $920 million, compared to $953 million in 2010.

### HYDRO-QUÉBEC ÉQUIPEMENT ET SERVICES PARTAGÉS

In 2011, Hydro-Québec Équipement et services partagés carried out power generation and transmission projects amounting to a total of $1,833 million, compared to $1,927 million in 2010. Work done for Hydro-Québec Production included the Romaine complex, specifically the Romaine-2 jobsite, as well as the rehabilitation and refurbishment of numerous facilities, such as Beauharnois generating station. For Hydro-Québec TransÉnergie, the division completed the connection of Eastmain-1-A and Sarcelle powerhouses. It commissioned the 230-kV Goémon–Mont-Louis–Gros-Morne line, which connects two wind farms in the Gaspésie region, and continued work to integrate output from other wind farms contracted for by Hydro-Québec Distribution. At the same time, it carried on with the upgrade of the main transmission system while pursuing other projects to increase transmission system capacity.

### SOCIÉTÉ D'ÉNERGIE DE LA BAIE JAMES

SEBJ's activities, carried out on behalf of Hydro-Québec Production, represented a total of $289 million, compared to $680 million in 2010. The main work took place at Eastmain-1-A powerhouse (commissioning of two generating units in 2011, followed by the third and final unit in January 2012) and Sarcelle powerhouse (generating unit assembly).

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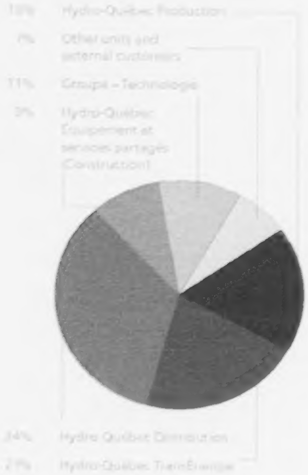
A) The operations of the Direction principale – Centre de services partagés are included under Corporate and Other Activities.

# Corporate and Other Activities

**BREAKDOWN OF 2011 REVENUE: DIRECTION PRINCIPALE – CENTRE DE SERVICES PARTAGÉS**



This heading includes corporate activities, the Direction principale – Centre de services partagés and the Groupe – Technologie.

## RESULTS

Corporate and Other Activities recorded net income of $109 million in 2011, an increase of $111 million over 2010, partly because of the revenue generated by the granting of sublicences for the use of lithium metal phosphates in the manufacture of rechargeable batteries.

### CORPORATE ACTIVITIES

Corporate activities consist of the Vice-présidence – Ressources humaines; financial services, which are provided by two departments; and the Groupe – Affaires corporatives et secrétariat général.

The Vice-présidence – Ressources humaines develops strategies, guidelines, frameworks, corporate programs and objectives in matters pertaining to human resources, labor relations, health and safety, and skills development. Its mission includes providing certain products and services in these areas to the entire company. In addition, it ensures that Management can count on optimum human resources conditions.

The Vice-présidence – Comptabilité et contrôle is responsible for overseeing financial, regulatory and management accounting frameworks as well as integrated business risk management. It also has the task of producing and analyzing the company's consolidated financial statements. Its other duties include financial planning, taxation, financial control and disbursements related to payroll and accounts payable.

The Vice-présidence – Financement, trésorerie et caisse de retraite is in charge of meeting the company's financing requirements, managing its treasury and maintaining relations with Hydro-Québec bondholders and rating agencies. It also acts as trustee of Hydro-Québec's pension fund. As at December 31, 2010, the date of the most recent valuation for funding purposes, the pension plan's funding ratio was 100.2%, which means that the assets held are sufficient to cover future pension costs. It is worth noting that the funding ratio has recovered by almost 20% compared to its low point during the 2008 economic crisis, notably because of the returns obtained on pension fund assets in the past two financial years.

The Groupe – Affaires corporatives et secrétariat général provides support services and strategic consulting in the areas of communications, public affairs, environment, ethics and government relations. It is also responsible for services and expertise related to legal affairs as well as safety and security of persons and property. In addition, it coordinates strategic planning and the company's contribution to the electrification of ground transportation. The Secretary General assists the President and Chief Executive Officer in carrying out the company's mandate and acts as Secretary to the Board of Directors and the Board committees at Hydro-Québec and its subsidiaries.

### DIRECTION PRINCIPALE – CENTRE DE SERVICES PARTAGÉS

The Direction principale – Centre de services partagés, which is part of Hydro-Québec Équipement et services partagés, develops strategies, guidelines and frameworks pertaining to procurement and services common to the entire company. It provides divisions and corporate units with support services, at least cost and adapted to their needs, so that they can focus on their core activities. These services include procurement of goods and services, real estate management, document management, material management and transportation, food and accommodation services.

Its revenue totaled $470 million in 2011, comparable to the $474 million recorded in 2010.

**Groupe – Technologie**

**Hydro-Québec IndusTech inc.** 100%

**Hydro-Québec CapiTech inc.** 100%

▢ Corporate unit

■ Subsidiary held by Hydro-Québec and under the responsibility of Groupe – Technologie

## GROUPE – TECHNOLOGIE

The Groupe – Technologie is composed primarily of the Direction principale – Télécommunications, the Direction principale – Technologie de l'information, Hydro-Québec's research institute and the subsidiaries Hydro-Québec IndusTech and Hydro-Québec CapiTech. The group's mandate is to ensure the integrated management of technological innovation and the optimal management of telecommunications and information technology infrastructure. With this in mind, it has continued to implement an overall vision for systems governance, architecture and security in order to capitalize on the convergence of technologies.

In the area of technological innovation, Hydro-Québec is interested, among other things, in battery materials, which are crucial to the development of electric mobility. In 2011, Hydro-Québec, the Université de Montréal and France's Centre national de la recherche scientifique, co-owners of the rights to key patents for the production of lithium metal phosphates (LMP), including lithium iron phosphate (LFP), and their use in lithium-ion batteries, established a new base for the international marketing of these products, in conjunction with the German firm Süd-Chemie. To this end, Süd-Chemie set up a Swiss subsidiary, LiFePO4+C Licensing, which can sublicense the patents for LMP production. The granting of sublicences generated $26 million of revenue for Hydro-Québec during the year.

### *DIRECTION PRINCIPALE – TÉLÉCOMMUNICATIONS AND DIRECTION PRINCIPALE – TECHNOLOGIE DE L'INFORMATION*

The Direction principale – Télécommunications and the Direction principale – Technologie de l'information enhance the efficiency of all divisions and corporate units by offering technology solutions in line with Hydro-Québec's business priorities.

In 2011, these two units recorded revenue of $557 million, compared to $523 million in 2010.

### *RESEARCH INSTITUTE*

Hydro-Québec's research institute, IREQ, provides technical assistance to the divisions and carries out technological innovation projects to support their operations and ensure the long-term development of Hydro-Québec. The company allocates approximately $100 million annually to IREQ's activities.

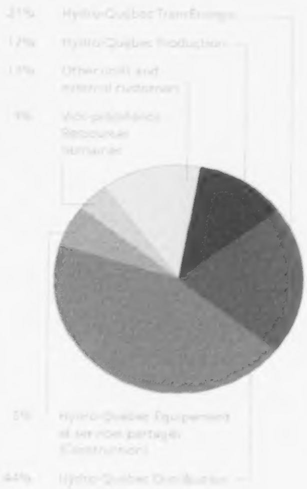
### *HYDRO-QUÉBEC INDUSTECH*

The mission of Hydro-Québec IndusTech is to partner with the private sector in industrializing and marketing technologies resulting from Hydro-Québec's research activities. Among other things, it is responsible for TM4 inc., a company active in the field of electric powertrain systems. In 2011, TM4 began work on designing a 200-kW powertrain for electric buses and other heavy vehicles.

## Investing activities

In 2011, the Groupe – Technologie's investments totaled $82 million, of which $62 million was earmarked for maintaining asset quality, $14 million for development activities, and $6 million for meeting growth in demand.

**BREAKDOWN OF 2011 REVENUE RELATED TO INFORMATION AND COMMUNICATION TECHNOLOGY ACTIVITIES**



## Outlook

In 2012, Hydro-Québec expects to earn net income of $2,550 million, or $150 million more than the target in the *Strategic Plan 2009–2013*. Continuing low electricity prices on markets outside Québec (the effect of shale gas) will be offset by efficiency gains reflected in operating expenses and by the fact that financial expenses will be lower than forecasted in the Strategic Plan.

Furthermore, Hydro-Québec will do its utmost to make an additional contribution of $75 million, in accordance with the provisions of the Québec government budget of March 17, 2011.

Hydro-Québec plans to invest some $4.7 billion in 2012. More than half of this amount will be earmarked for development and growth activities and for the Energy Efficiency Plan. The remainder will go toward facility maintenance and improvements.

**Hydro-Québec Production** will continue its major hydroelectric development projects, including the commissioning of Sarcelle powerhouse. At the same time, it will go ahead with work at the Romaine complex, including ongoing construction at Romaine-2; startup at Romaine-1; completion of the section of road leading to Romaine-3 and construction of Mista workcamp in order to get work under way at the Romaine-3 jobsite. The complex's four generating stations will be commissioned between 2014 and 2020.

**Hydro-Québec TransÉnergie** will invest a considerable amount in development to integrate new hydroelectric and wind capacity in Québec. Specifically, it will continue connecting various wind farms built in response to Hydro-Québec Distribution's calls for tenders and start constructing the necessary infrastructure for connecting Romaine-2 generating station. The division will also continue to invest in maintenance and improvement activities to ensure the reliability and long-term operability of its transmission assets and enhance service quality. An example of this is the addition and modification of equipment on the 315-kV transmission system in the Québec–Montréal corridor, which, among other things, involves expanding Bout-de-l'Île substation, replacing equipment at this facility, reorganizing lines and connecting the substation to the 735-kV network.

**Hydro-Québec Distribution** will continue to deliver reliable power and high-quality services to its Québec customers. It will make further investments to handle the growth of its Québec customer base and to maintain and improve the quality of its facilities, notably those involved in distribution automation. It will also continue to implement the Energy Efficiency Plan, which includes measures for low-income households, with a view to achieving 11 TWh in energy savings by 2015. In addition, as part of the remote meter reading project, which is subject to the approval of the Régie de l'énergie, Hydro-Québec will install 3.8 million next-generation meters over the 2012–2017 period in order to roll out an advanced metering infrastructure.

# Integrated Business Risk Management

For a number of years, Hydro-Québec has applied an integrated business risk management process that is now part of its ongoing activities. This process is supported by various control, communication and assessment mechanisms that enable it to monitor risk developments on a dynamic basis.

Hydro-Québec's divisions and corporate units are central to the process. As part of their ongoing activities, they manage the risks to which they are exposed and reassess them on a regular basis, daily in some cases. In concrete terms, each division or corporate unit must determine and assess its main risks and then develop and apply mitigation measures to ensure that residual business risks are at a level acceptable to Hydro-Québec. During the annual planning process, this exercise results in a consolidated portfolio of residual business risks. This consolidated portfolio is presented to the Board of Directors with the Strategic Plan or the annual Business Plan, which include an analysis of the sensitivity of net income to the principal risks. The divisions and corporate units report on their risk management activities and follow-up to the Management Committee, which then acts as a risk management committee to provide overall monitoring of business risks.

## ANNUAL INTEGRATED BUSINESS RISK MANAGEMENT PROCESS

January 1 April 30 August 31 December 31

| | 1st four-month period | 2nd four-month period | 3rd four-month period |
|---|---|---|---|
| | | | **Business Plan**<br>**Strategic Plan** |
| Hydro-Québec Units | Division or group monitoring plans covering main business risks | | |
| | Division or group risk management reports April review in the form of highlights | Division or group risk management reports August review in the form of highlights | |
| | | Identification of risks and validation by division/group president | Preparation or revision of division or group business risk portfolios – Supporting documents for evaluation |
| Hydro-Québec Management | **Management Committee and Segment Committees** (in risk management mode)<br>Review of risk management reports | **Management Committee and Segment Committees** (in risk management mode)<br>Review of risk management reports | **Management Committee and Segment Committees** (in risk management mode)<br>Review of each division's or group's risk portfolio and discussion |
| | | | **Management Committee acting as the Risk Management Committee with the President and CEO as CRO**<br>Review of consolidated enterprise risk portfolio, risk map, probability of reaching net income |
| Board of Directors | | | **Finance Committee**<br>Presentation of consolidated enterprise risk portfolio, risk map, probability of reaching net income |
| | | | **Audit Committee**<br>President and CEO's report on integrated enterprise business risk management process |
| | | | **Board of Directors**<br>Presentation of consolidated enterprise risk portfolio, risk map, probability of reaching net income |

## FINANCIAL RISKS

In the course of its operations, Hydro-Québec carries out transactions that expose it to certain financial risks, such as market, credit and liquidity risk. Rigorous follow-up and the adoption of strategies that include the use of derivative instruments considerably reduce exposure to such risks and their impact on results.

### MARKET RISK

Hydro-Québec's results are subject to different types of market risk associated mainly with fluctuations in the Canadian dollar's exchange rate compared to the U.S. dollar as well as fluctuations in interest rates and aluminum prices. Exchange rate fluctuations affect revenue from sales denominated in U.S. dollars as well as the cost of U.S. dollar–denominated debt and swaps. Interest rate fluctuations affect financial expenses, pension costs and the authorized return on equity of regulated divisions. Aluminum price fluctuations have an impact on the revenue from special contracts with certain large industrial customers in Québec.

The three types of market risk are subject to active integrated management, in particular through derivative financial products. The purpose of such management is to limit the impact of market risk on Hydro-Québec's short-term results, according to strategies and criteria established based on the company's risk tolerance. Furthermore, Hydro-Québec can count on certain offsetting factors that mitigate its market risk over the medium and long term. For example, it holds debt and swaps denominated in U.S. dollars as a hedge against sales in that currency. The effect of exchange rate fluctuations on sales is thus offset by exchange gains or losses on debt in U.S. dollars. There is also an offsetting effect between the impact of a general increase or decrease in interest rates on financial expenses, on the one hand, and the impact of such an increase or decrease on pension costs and the authorized return on equity of regulated divisions, on the other.

### CREDIT RISK

Credit risk is the risk that a counterparty may not meet its contractual obligations. Hydro-Québec is exposed to credit risk related to receivables through ongoing energy sales in Québec. These sales are billed at rates that provide for cost recovery according to conditions approved by the Régie de l'énergie. The company is also exposed to credit risk related to the cash equivalents, short-term investments and derivative instruments traded with financial institutions and other issuers and, to a lesser extent, with North American energy companies under Hydro-Québec Distribution supply contracts and Hydro-Québec Production energy transactions on markets outside Québec.

Exposure to credit risk is mitigated by the implementation of limits and frameworks for risk concentration and level of exposure by counterparty. To ensure compliance with such limits and frameworks, Hydro-Québec takes a proactive approach based on various controls and monitoring reports. These enable it to react quickly to any event that could have an impact on the financial condition of its counterparties. In addition, the company generally does business with counterparties that have a high credit rating. It also enters into agreements to limit the market value of the main portfolios of derivative instruments.

### LIQUIDITY RISK

Liquidity risk is the risk that Hydro-Québec may have difficulty meeting commitments related to its financial liabilities. For a company, this type of risk may translate into difficulties accessing sources of financing for its investment program.

Hydro-Québec's liquidity risk is mitigated by several factors, including substantial cash flows generated by operating activities, access to a preauthorized standby credit facility and a diversified portfolio of highly liquid financial instruments. Given the mitigation measures in place, the company considers its level of exposure to liquidity risk to be low.

## OPERATIONAL RISKS

### GENERATION

One of the principal uncertainties that Hydro-Québec faces relates to natural water inflows. Hydro-Québec Production must ensure that it is able to meet its commitments to supply the annual heritage pool of 165 TWh to Hydro-Québec Distribution and fulfill its contractual obligations. In concrete terms, this means being able to cover a natural inflow deficit of 64 TWh over two consecutive years, and 98 TWh over four consecutive years. To meet this requirement, the division applies a variety of mitigation measures and closely monitors them. It therefore manages its reservoir storage on a multiyear basis and maintains an adequate margin between its generating capacity and its commitments. This allows the division to compensate for variations in runoff, replenish its reserves or take advantage of business opportunities. Hydro-Québec regularly reports to the Régie de l'énergie on its generating capacity and the energy reserve of Hydro-Québec Production.

Beyond runoff uncertainties, Hydro-Québec Production's wholesale activities are subject to market risk and the risk of unavailability of generating and transmission equipment. Market risk results from fluctuations in electricity and fuel prices, and is mitigated by ongoing monitoring of trends in wholesale markets and the use of hedging derivative instruments. The risk of unavailability of generating and transmission equipment is maintained at a level deemed acceptable through maintenance and upgrade programs.

The risks related to Hydro-Québec Production's wholesale activities are quantified in an integrated fashion by a team of specialists that is independent of the group carrying out the transactions. This team sees to the application of controls, presents daily reports to Senior Management and ensures compliance with the limits approved by Management and the Board of Directors.

### TRANSMISSION

Several factors, such as extreme weather and equipment failure, may cause service interruptions or result in the unavailability of part of the transmission system. The multifaceted strategy adopted by Hydro-Québec TransÉnergie to prevent these problems includes implementing the standards of the North American Electric Reliability Corporation and the Northeast Power Coordinating Council, as well as measures to maintain and improve transmission facilities and extend their useful life. In 2007, the Régie de l'énergie confirmed the reliability expertise of Hydro-Québec TransÉnergie by designating its Direction – Contrôle des mouvements d'énergie, the unit responsible for system control, as Reliability Coordinator for Québec.

Hydro-Québec TransÉnergie must ensure adequate transmission capacity to supply Hydro-Québec Distribution and other customers, as well as transmission system security and reliability. To do so, the division relies, among other things, on a strategy of ensuring long-term operability of transmission assets and on optimal management of annual peak load.

### DISTRIBUTION

Hydro-Québec Distribution's activities are subject to uncertainty related to fluctuations in demand (under normal climate conditions) due to the economic and energy situation, which have an impact on results. When demand is lower than the forecasts made in the rate case, the division cannot recover from customers all the costs related to power distribution and power transmission through the Hydro-Québec TransÉnergie system. To counter the impact of this risk, the division constantly fine-tunes its method of forecasting demand for electricity.

In addition, Hydro-Québec Distribution applies a series of measures to ensure long-term operability of the distribution system, and hence service quality. These measures include compliance with applicable standards for overhead and underground systems, the implementation of an asset maintenance program and a strategy for asset renewal, as well as vegetation control.

In order to promote better energy use, the division is also pursuing its efforts in the area of energy efficiency.

### CONSTRUCTION

One of the principal risks that Hydro-Québec Équipement et services partagés must deal with is pressure on project costs, due to such factors as the rising cost of labor in the construction industry, higher prices for certain materials or products (such as steel and petroleum products) and unforeseen events that affect project timetables.

There is also a risk related to the quality and delivery time for components, especially if they are manufactured outside Canada. In addition, the ongoing consolidation of electrical equipment suppliers could affect the medium- and long-term price or availability of such equipment.

To meet its commitments and continue to apply high quality and safety standards, Hydro-Québec Équipement et services partagés has implemented a number of measures that reduce its risk exposure. For instance, the division monitors key indicators for trends in prices and the rate of activity in the construction industry. It has also developed procurement strategies that promote competition or maintaining expertise in most markets and it adjusts its project completion strategies according to economic conditions, in consultation with its customers.

### CORPORATE AND OTHER ACTIVITIES

Environmental protection and conservation are among Hydro-Québec's central concerns. Most activities that have a significant impact on the environment are governed by an ISO 14001–certified environmental management system. In addition, every year, the company reviews its management of environmental issues and details them in its Sustainability Report.

Hydro-Québec is also concerned with information security and the risks associated with confidentiality and with the loss of availability or integrity of systems and data as a result of a malicious act, error or natural disaster. It regularly assesses how well its information systems are protected against threats and implements the necessary security measures. These measures include an information and communication technologies security program, an antivirus expertise centre, Internet filtering, a security monitoring centre, managing of identities and access, and managing of incidents and vulnerabilities.

Finally, Hydro-Québec has a corporate emergency response plan to ensure the continuity of its operations and its mission in case of an exceptional event. The plan defines the material, technical and organizational means required to restore electrical service. It also provides for effective coordination of all internal and external responders, including public authorities.

## CHANGEOVER TO INTERNATIONAL FINANCIAL REPORTING STANDARDS

On February 13, 2008, the Canadian Accounting Standards Board (AcSB) confirmed that publicly accountable enterprises would be required to apply International Financial Reporting Standards (IFRS) in their interim and annual financial statements relating to fiscal years beginning on or after January 1, 2011, with comparative information presented for fiscal 2010. On October 28, 2009, the Public Sector Accounting Board confirmed that government business enterprises such as Hydro-Québec would be required to comply with the standards applicable to publicly accountable enterprises.

At its meeting of September 7 and 8, 2010, the AcSB approved an amendment to provide an optional one-year deferral, to January 1, 2012, of the mandatory date for adoption of IFRS for entities with activities subject to cost-based rate regulation.

Because it is subject to rate regulation in its power transmission and distribution activities and it recognizes regulatory assets and liabilities in this regard, Hydro-Québec was able to use this deferral. The company therefore adopted IFRS on January 1, 2012, and will present the comparative information for 2011 in its *Annual Report 2012*.

Hydro-Québec began its IFRS conversion project in 2007. The project was broken down into three main phases:

Phase 1 – Diagnostic study: Identification of the main differences between Canadian generally accepted accounting principles (GAAP) and IFRS and preliminary evaluation of IFRS 1, *First-time Adoption of International Financial Reporting Standards*, which deals with the optional exemptions on first-time adoption of IFRS. This phase led to establishing strategies for the implementation of IFRS.

Phase 2 – Designing and developing solutions: Preparation of a conversion plan, detailed analysis of IFRS, election of the most appropriate accounting policies and quantification of the impact of the changeover to IFRS.

Phase 3 – Implementation: Changes to systems, filing of requests for changes in accounting policies with the Régie de l'énergie, preparation of the opening Statement of Financial Position and comparative information (in 2011, a parallel system of accounting was maintained between Canadian GAAP and IFRS) and preparation of model financial statements according to IFRS.

The main issues identified concern property, plant and equipment, regulatory accounting practices and employee future benefits.

# MANAGEMENT REPORT

Hydro-Québec's consolidated financial statements and all additional financial information contained in this Annual Report are the responsibility of Management and are approved by the Board of Directors. The consolidated financial statements have been prepared by Management in accordance with Canadian generally accepted accounting principles and take into account the decisions handed down by the Régie de l'énergie with respect to the transmission and distribution of electricity. They include amounts determined based on Management's best estimates and judgment. Financial information presented elsewhere in the Annual Report is consistent with the information provided in the consolidated financial statements.

Management maintains an internal control system which includes communicating Hydro-Québec's rules of ethics and *Code of Conduct* to employees, primarily to ensure the proper management of resources and the orderly conduct of business. The objective of this system is to provide reasonable assurance that the financial information is pertinent and reliable and that the assets of Hydro-Québec are adequately recorded and safeguarded. An internal auditing process allows evaluation of the sufficiency and effectiveness of control, as well as of Hydro-Québec's policies and procedures. Recommendations ensuing from this process are submitted to Management and the Audit Committee.

The Board of Directors is responsible for corporate governance. It assumes its responsibility for the consolidated financial statements principally through its Audit Committee, composed solely of independent directors, who do not hold full-time positions within Hydro-Québec or in one of its subsidiaries. The Audit Committee is responsible for ensuring that the consolidated financial statements present fairly Hydro-Québec's financial position, results of operations and cash flows, and for recommending the consolidated financial statements to the Board of Directors for approval. The Audit Committee meets with Management, the Internal Auditor and the independent auditors to discuss the results of their audits and the resulting findings with respect to the integrity and the quality of Hydro-Québec's financial reporting as well as the effectiveness of its internal control system. The Internal Auditor and the independent auditors have full and unrestricted access to the Audit Committee, with or without Management present.

The 2011 and 2010 consolidated financial statements have been audited jointly by the Auditor General of Québec, KPMG LLP and Ernst & Young LLP.

Lise Croteau

**Michael L. Turcotte**
Chairman of the Board

**Thierry Vandal**
President and Chief Executive Officer

**Lise Croteau**
Vice President –
Accounting and Control

Montréal, Québec
February 17, 2012

# INDEPENDENT AUDITORS' REPORT

To the Minister of Finance of Québec:

## REPORT ON CONSOLIDATED FINANCIAL STATEMENTS

We have audited the accompanying consolidated financial statements of Hydro-Québec, which comprise the consolidated balance sheets as at December 31, 2011 and 2010, and the consolidated statements of operations, retained earnings, cash flows and comprehensive income for the year then ended, and the notes, which include a summary of significant accounting policies and other explanatory information.

### MANAGEMENT'S RESPONSIBILITY FOR THE CONSOLIDATED FINANCIAL STATEMENTS

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with Canadian generally accepted accounting principles, and for such internal control as Management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

### AUDITORS' RESPONSIBILITY

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform our audits to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by Management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained in our audits is sufficient and appropriate to provide a basis for our audit opinion.

### OPINION

In our opinion, these consolidated financial statements present fairly, in all material respects, the financial position of Hydro-Québec as at December 31, 2011 and 2010, and the consolidated results of its operations and its consolidated cash flows for the years then ended, in accordance with Canadian generally accepted accounting principles.

## REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

As required by the *Auditor General Act* (R.S.Q., c. V-5.01), we report that, in our opinion, except for the application of the changes in accounting policies described in Note 2 to the consolidated financial statements, these principles have been applied on a basis consistent with that of the preceding year.

KPMG LLP[a]

**KPMG LLP**
Chartered Accountants

Ernst & Young LLP[b]

**Ernst & Young LLP**
Chartered Accountants

Michel Samson, CA auditor

**Michel Samson, CA auditor**
Acting Auditor General of Québec

Montréal, Québec
February 17, 2012

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(a) CA auditor permit No. 20027
(b) CA auditor permit No. 10464

# CONSOLIDATED FINANCIAL STATEMENTS

## CONSOLIDATED STATEMENTS OF OPERATIONS

| Years ended December 31<br>In millions of Canadian dollars | Notes | 2011 | 2010 |
|---|---|---|---|
| **Revenue** | 4 | 12,392 | 12,484 |
| **Expenditure** | | | |
| Operations | | 2,571 | 2,579 |
| Electricity and fuel purchases | | 1,224 | 1,390 |
| Depreciation and amortization | 5 | 2,623 | 2,565 |
| Taxes | 6 | 866 | 909 |
| | | 7,284 | 7,443 |
| **Operating income** | | 5,108 | 5,041 |
| Financial expenses | 7 | 2,497 | 2,526 |
| **Net income** | | 2,611 | 2,515 |

## CONSOLIDATED STATEMENTS OF RETAINED EARNINGS

| Years ended December 31<br>In millions of Canadian dollars | Note | 2011 | 2010 |
|---|---|---|---|
| Balance, beginning of year | | 13,965 | 13,336 |
| Net income | | 2,611 | 2,515 |
| | | 16,576 | 15,851 |
| Dividend | 18 | 1,958 | 1,886 |
| Balance, end of year | | 14,618 | 13,965 |

The accompanying notes are an integral part of the consolidated financial statements.

## CONSOLIDATED BALANCE SHEETS

| As at December 31<br>In millions of Canadian dollars | Notes | 2011 | 2010 |
|---|---|---|---|
| **ASSETS** | | | |
| **Current assets** | | | |
| Cash and cash equivalents | | **1,377** | 80 |
| Short-term investments | | **904** | 1,230 |
| Accounts receivable and other receivables | 16 | **1,744** | 1,814 |
| Derivative instruments | 16 | **1,322** | 889 |
| Regulatory assets | 3 | **18** | |
| Materials, fuel and supplies | | **236** | 314 |
| | | **5,601** | 4,327 |
| Property, plant and equipment | 8 | **56,901** | 55,537 |
| Intangible assets | 9 | **2,187** | 2,083 |
| Investments | 10 | **124** | 114 |
| Derivative instruments | 16 | **1,313** | 952 |
| Regulatory assets | 3 | **21** | 30 |
| Other assets | 11 | **3,490** | 2,766 |
| | | **69,637** | 65,809 |
| **LIABILITIES** | | | |
| **Current liabilities** | | | |
| Borrowings | | **52** | 18 |
| Accounts payable and accrued liabilities | | **2,099** | 1,987 |
| Dividend payable | 18 | **1,958** | 1,886 |
| Accrued interest | | **862** | 909 |
| Derivative instruments | 16 | **261** | 308 |
| Current portion of long-term debt | 12 | **1,025** | 1,933 |
| | | **6,257** | 7,041 |
| Long-term debt | 12 | **40,744** | 36,439 |
| Asset retirement obligations | 13 | **540** | 504 |
| Derivative instruments | 16 | **2,098** | 2,114 |
| Other long-term liabilities | 14 | **883** | 857 |
| Perpetual debt | 15 | **281** | 288 |
| | | **50,803** | 47,243 |
| **EQUITY** | 18 | | |
| Share capital | | **4,374** | 4,374 |
| Retained earnings | | **14,618** | 13,965 |
| Accumulated other comprehensive income | | **(158)** | 227 |
| | | **14,460** | 14,192 |
| | | **18,834** | 18,566 |
| | | **69,637** | 65,809 |
| Commitments and contingencies | 22 | | |

The accompanying notes are an integral part of the consolidated financial statements.

On behalf of the Board of Directors,

Jacques LeBlanc

**Jacques Leblanc**
Chair of the Audit Committee

**Michael L. Turcotte**
Chairman of the Board

## CONSOLIDATED STATEMENTS OF CASH FLOWS

| Years ended December 31<br>In millions of Canadian dollars | Notes | 2011 | 2010 |
|---|---|---|---|
| **Operating activities** | | | |
| Net income | | 2,611 | 2,515 |
| Adjustments to determine net cash flows from operating activities | | | |
| Depreciation and amortization | 5 | 2,623 | 2,565 |
| Amortization of premiums, discounts and issue expenses related to debt securities | 7 | 148 | 127 |
| Other | | 149 | (152) |
| Change in non-cash working capital items | 20 | 170 | 153 |
| Net change in accrued benefit assets and liabilities | 21 | (498) | (569) |
| | | 5,203 | 4,639 |
| **Investing activities** | | | |
| Additions to property, plant and equipment | | (3,508) | (3,916) |
| Additions to intangible assets | | (306) | (304) |
| Cash receipts from the government reimbursement for the 1998 ice storm | | 7 | 9 |
| Disposal of investments | | – | 10 |
| Net disposal of short-term investments | | 376 | 891 |
| Other | | (4) | 8 |
| | | (3,435) | (3,302) |
| **Financing activities** | | | |
| Issuance of long-term debt | | 4,574 | 1,593 |
| Repayment of long-term debt and sinking fund | | (3,158) | (1,083) |
| Cash receipts arising from credit risk management | 16 | 3,898 | 2,322 |
| Cash payments arising from credit risk management | 16 | (3,933) | (2,374) |
| Net change in borrowings | | 32 | (13) |
| Dividend paid | | (1,886) | (2,168) |
| Other | | (2) | (2) |
| | | (475) | (1,725) |
| **Foreign currency effect on cash and cash equivalents** | | 4 | (4) |
| **Net change in cash and cash equivalents** | | 1,297 | (392) |
| **Cash and cash equivalents, beginning of year** | | 80 | 472 |
| **Cash and cash equivalents, end of year** | | 1,377 | 80 |
| Supplementary cash flow information | 20 | | |

The accompanying notes are an integral part of the consolidated financial statements.

## CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

| Years ended December 31<br>In millions of Canadian dollars | 2011 | 2010 |
|---|---|---|
| **Net income** | **2,611** | 2,515 |
| **Other comprehensive income** | | |
| Change in deferred losses on items designated as cash flow hedges | **(113)** | (38) |
| Reclassification to operations of deferred gains on items designated as cash flow hedges | **(272)** | (444) |
| | **(385)** | (482) |
| **Comprehensive income** | **2,226** | 2,033 |

The accompanying notes are an integral part of the consolidated financial statements.

# NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Years ended December 31, 2011 and 2010

Amounts in tables are in millions of Canadian dollars, unless otherwise indicated.

*Under the provisions of the Hydro-Québec Act, Hydro-Québec is mandated to supply power and to pursue endeavors in energy-related research and promotion, energy conversion and conservation, and any field connected with or related to power or energy. Hydro-Québec is required, in particular, to supply a base volume of up to 165 TWh a year of heritage pool electricity for the Québec market, as set out in the Act respecting the Régie de l'énergie. As a government corporation, Hydro-Québec is exempt from paying income taxes.*

## Note 1 **Significant Accounting Policies**

In September 2010, the Canadian Accounting Standards Board authorized rate-regulated entities to defer the adoption of International Financial Reporting Standards to January 1, 2012. Since Hydro-Québec was entitled to exercise this deferral right, its 2011 financial statements have been prepared in accordance with Canadian generally accepted accounting principles (GAAP) as set forth in Part V of the *Canadian Institute of Chartered Accountants Handbook* (*CICA Handbook*), "Pre-Changeover Accounting Standards," and reflect the decisions of the Régie de l'énergie (the "Régie"). These decisions may affect the timing of the recognition of certain transactions in the consolidated operations, resulting in the recognition of regulatory assets and liabilities, which Hydro-Québec considers it is likely to recover or settle subsequently through the rate-setting process.

### REGULATION

The *Act respecting the Régie de l'énergie* grants the Régie exclusive authority to determine or modify the rates and conditions under which electricity is transmitted and distributed by Hydro-Québec. Hydro-Québec's electricity transmission and distribution activities in Québec are therefore regulated. Under this legislation, rates are set by reasoned decision of three commissioners after public hearings. Moreover, the Act stipulates that rates are determined on a basis that allows for recovery of the cost of service plus a reasonable return on the rate base.

The Régie and Hydro-Québec are both part of the Québec government reporting entity. However, the Régie is an independent, quasi-judicial economic regulatory agency accountable to the National Assembly of Québec through the Minister of Natural Resources and Wildlife.

#### *Transmission*

Hydro-Québec's power transmission rates for 2011 and 2010 were determined in Régie decisions D-2011-061 and D-2010-041, respectively, and became effective on January 1, 2011, and January 1, 2010, respectively. The authorized return on the rate base was set at 7.21% in 2011 and 7.44% in 2010, assuming a capitalization with 30% equity.

#### *Distribution*

Hydro-Québec's electricity rates were determined in decisions D-2011-036 and D-2010-035, in which the Régie authorized an across-the-board rate reduction of 0.41%, and granted an across-the-board rate increase of 0.35%, effective April 1, 2011, and April 1, 2010, respectively. The authorized return on the rate base was set at 7.26% in 2011 and 7.54% in 2010, assuming a capitalization with 35% equity.

### SCOPE OF CONSOLIDATION

The consolidated financial statements include the accounts of Hydro-Québec, its subsidiaries and its joint ventures as well as those of variable interest entities where Hydro-Québec is the primary beneficiary. Interests in joint ventures are accounted for using the proportionate consolidation method.

### USE OF ESTIMATES

The preparation of financial statements in accordance with GAAP requires that Management make estimates and assumptions that affect the amounts recognized as assets and liabilities, the disclosures regarding contingent assets and liabilities at the date of the consolidated financial statements and the amounts recognized as revenue and expenditure for the years at issue. The estimates relate, among other things, to revenue, which includes estimated amounts for electricity delivered but not billed; the useful life of property, plant and equipment and intangible assets for calculating the depreciation and amortization expense; cash flows; the expected timing of payments; and the discount rates used to determine asset retirement obligations and employee future benefits. These rates are based on actuarial and economic assumptions. Actual results could differ from those estimates and such differences could be significant.

### REVENUE

Substantially all the revenue comes from electricity sales. Revenue from these sales is recognized on delivery. Revenue also includes certain amounts that Hydro-Québec is entitled to recover from customers or is required to reimburse to them. These amounts relate, among other things, to the supply of electricity in excess of the heritage pool, to transmission services and to climate conditions. These items give rise to financial assets and liabilities that are reported in Accounts receivable and other receivables and Other assets or in Accounts payable and accrued liabilities and Other long-term liabilities, based on their maturities, which range from one to five years.

Other revenue is recognized on delivery of the goods or services.

### FOREIGN CURRENCY TRANSLATION

#### *Self-sustaining foreign operations*

The financial statements of foreign operations that are self-sustaining in terms of financial and operational management are translated according to the current rate method using the foreign currency as the measuring unit. Under this method, assets and liabilities are translated into Canadian dollars at the exchange rate in effect at the balance sheet date, and revenue and expenditure are translated at the average exchange rate in effect during the period. The exchange gains or losses resulting from the translation of the financial statements of these foreign operations are presented in Accumulated other comprehensive income under Equity on the balance sheet.

#### *Integrated foreign operations and foreign currency transactions*

In the case of foreign operations that are integrated in terms of financial and operational management, as well as foreign currency transactions, accounts stated in foreign currencies are translated according to the temporal method. Under this method, monetary assets and liabilities are translated into Canadian dollars at the exchange rate in effect at the balance sheet date, and non-monetary items are translated at the historical exchange rate. Revenue and expenditure arising from foreign currency transactions are translated into Canadian dollars at the exchange rate in effect at the transaction date. The exchange gains or losses resulting from the translation of monetary items are included in operations, unless they relate to hedging items for future sales in U.S. dollars, in which case they are recognized in Other comprehensive income until the period in which such sales are made.

## FINANCIAL INSTRUMENTS

Financial instruments are measured at fair value on initial recognition. Their measurement in subsequent periods and the recognition of any changes in fair value depend on the category in which they are classified.

The following table presents the classification of financial instruments in the various categories:

| Category | Financial Instruments |
|---|---|
| Financial assets and liabilities held for trading | |
| Designated | Cash and cash equivalents |
| Classified | Derivative instruments |
| Available-for-sale financial assets | Short-term investments |
| | Sinking fund, presented in Other assets |
| Loans and receivables | Accounts receivable and other receivables |
| | Government reimbursement for the 1998 ice storm, presented in Other assets |
| | Receivables presented in Other assets |
| Other financial liabilities | Borrowings |
| | Accounts payable and accrued liabilities |
| | Dividend payable |
| | Accrued interest |
| | Current portion of long-term debt |
| | Long-term debt |
| | Accounts payable presented in Other long-term liabilities |
| | Perpetual debt |

Financial assets and liabilities are offset when certain criteria are met. The net amount is therefore reported in the balance sheet when Hydro-Québec has a legally enforceable right to set off the recognized amounts and it intends either to settle on a net basis, or to realize the asset and settle the liability simultaneously.

Moreover, futures or forward contracts on non-financial items that can be settled on a net basis are recorded at the date of settlement if there is a probability of receipt or delivery in accordance with expected requirements.

Financial assets and liabilities held for trading are recorded at fair value at the balance sheet date. Changes in fair value are recognized in operations for the period in which they occur, except in the case of derivative instruments designated as hedges in a cash flow hedging relationship.

Available-for-sale financial assets are recorded at fair value at the balance sheet date. Changes in fair value are recorded in Other comprehensive income until they are realized, at which time they are reclassified to operations.

Loans and receivables, less any impairment losses, as well as other financial liabilities are measured at amortized cost using the effective interest method. Amortized cost includes transaction costs.

As part of its integrated business risk management, Hydro-Québec uses various financial instruments to manage its market risk, consisting of currency risk, interest rate risk and risk resulting from fluctuating aluminum and energy prices. Hydro-Québec applies cash flow or fair value hedge accounting to the eligible hedging relationships. It formally documents all relationships between hedging instruments and hedged items. This process involves associating all derivative instruments with specific assets and liabilities on the balance sheet, or with probable anticipated transactions. Hydro-Québec also measures the effectiveness of hedging relationships initially and then monthly thereafter. In addition, for hedges of anticipated transactions, it regularly assesses the probability of the occurrence of those transactions designated as hedged items.

In the case of a cash flow hedge, the effective portion of changes in the fair value of an instrument designated as a hedge is recognized under Other comprehensive income, while the ineffective portion is immediately recognized in operations, under the line item affected by the hedged item. Amounts included in Accumulated other comprehensive income are reclassified to operations, also under the line item affected by the hedged item, during the periods in which the change in cash flows attributable to the hedged item affects operations. If a derivative instrument no longer satisfies hedging conditions or is sold or liquidated, or if Hydro-Québec terminates its designation as a hedging item, hedge accounting ceases to be applied on a prospective basis. Previously recognized gains and losses continue to be carried forward to be recognized in operations during the same periods as the hedged item. If the hedged item ceases to exist, the gains or losses carried forward are immediately reclassified to operations.

In the case of a fair value hedge, the derivative instrument is recorded at fair value, and changes in the fair value, including those related to the ineffective portion of the hedge, are recognized in operations under the line item affected by the hedged item. Offsetting changes in the fair value of the hedged item attributable to the hedged risk are recognized as adjustments to the hedged item's carrying amount and are offset against operations.

In addition, an embedded derivative must be separated from its host contract and recognized at fair value on the balance sheet if certain conditions are met. Hydro-Québec has opted to apply this accounting treatment to all host contracts issued, acquired or substantively amended on or after January 1, 2003.

Hydro-Québec must classify the fair value measurements of financial instruments according to a three-level hierarchy, based on the type of inputs used in making these measurements:

- Level 1: Quoted prices on active markets for identical instruments;
- Level 2: Significant inputs and value drivers that are observable on active markets; and
- Level 3: One or more significant inputs or value drivers that are not observable market data.

Cash, cash equivalents, short-term investments and derivative instruments are recognized at fair value. Fair value is the amount of the consideration that would be agreed upon in an arm's length transaction between knowledgeable, willing parties who are under no compulsion to act. Cash equivalents consist of investments with a maturity of three months or less from the date of acquisition. Investments with a maturity of more than three months are presented in Short-term investments.

Except for cash and measurements of exchange-traded derivative instruments, which are Level 1 measurements, fair value measurements for financial instruments are Level 2 measurements. These measurements are obtained by discounting future cash flows, which are estimated on the basis of the spot rates or the forward rates or prices (foreign exchange rates, interest rates, and aluminum or energy prices) in effect on the balance sheet date and take into account the credit risk assessment. The valuation techniques make use of observable market data.

## Note 1 Significant Accounting Policies (continued)

### MATERIALS, FUEL AND SUPPLIES

Inventories of materials, fuel and supplies are valued at the lower of cost and net realizable value. Cost is determined by the weighted average cost method.

### PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment are carried at cost, which comprises materials, labor, other costs directly related to construction activities, and financial expenses capitalized during construction. Property, plant and equipment also include draft-design costs for projects whose technical feasibility has been demonstrated, whose profitability has been estimated, and for which Management deems that it will in all likelihood have the necessary resources for completion. The discounted value of retirement obligations related to property, plant and equipment is added to the carrying amount. Moreover, contributions from third parties are applied against the cost of the related property, plant and equipment.

Financial expenses capitalized to property, plant and equipment under construction are determined using the average cost of Hydro-Québec's long-term debt. When the property, plant and equipment under construction relate to regulated transmission and distribution activities, such financial expenses take return on equity into account. The portion that corresponds to return on equity is included in Revenue in the consolidated operations.

Property, plant and equipment are depreciated over their useful life, using the straight-line method, starting in the month following the date of commissioning. The depreciation periods for the principal categories of property, plant and equipment are as follows:

| | |
|---|---|
| Hydraulic generation | 40 to 100 years |
| Thermal generation | 15 to 50 years |
| Nuclear generation | 15 to 50 years |
| Transmission substations and lines | 30 to 50 years |
| Distribution substations and lines | 25 to 40 years |
| Other property, plant and equipment | 3 to 50 years |

When property, plant and equipment are retired, their cost, net of accumulated depreciation and salvage value, is recognized in operations for the year.

Maintenance and repair costs are recognized in operations when incurred.

### INTANGIBLE ASSETS

Intangible assets are recorded at cost. Financial expenses are capitalized over the development period.

The costs related to the Energy Efficiency Plan (EEP), and internally developed computer software and development costs are capitalized when they meet capitalization criteria.

Intangible assets with an indefinite useful life are not amortized. These assets are tested for impairment annually or more frequently if events indicate a potential impairment loss. The excess of the carrying amount over the fair value is recognized in operations for the period in which the impairment is determined.

Intangible assets with a finite useful life, namely the EEP, software and licences, development costs and patents, are amortized over their useful life according to the straight-line method over the following periods:

| | |
|---|---|
| EEP | 10 years |
| Software and licences | 3 to 10 years |
| Development costs | 5 years |
| Patents | 20 years |

### IMPAIRMENT OF LONG-LIVED ASSETS

Hydro-Québec reviews the carrying amount of its property, plant and equipment and its amortizable intangible assets whenever events or changes in circumstances indicate that the expected undiscounted net cash flows could be lower than the carrying amount of the property and assets. An impairment loss corresponding to the amount by which the carrying amount exceeds fair value is recognized, if applicable.

### INVESTMENTS

Investments in companies over which Hydro-Québec can exercise significant influence are accounted for on an equity basis. These investments are initially recognized at cost, and the carrying amount is increased or decreased by an amount equal to Hydro-Québec's share of the changes in the investees' net assets after the date of acquisition. Hydro-Québec's share of the investees' operations is recognized in net income. Dividends received from the investees are applied against the carrying amount of the investment.

### EMPLOYEE FUTURE BENEFITS

Hydro-Québec offers all its employees a contributory defined-benefit pension plan based on final pay, as well as other post-retirement and post-employment benefits.

The cost of pension benefits and other post-retirement benefits provided in exchange for current service is calculated according to the projected benefit method prorated on years of service. It is determined using a discount rate and is based on Management's best estimates, in particular concerning the expected return on plan assets, salary escalation, the increase in health care costs, and employees' retirement ages. Plan assets are measured at fair value at the balance sheet date.

In order to establish the cost of benefits and its employee future benefit obligations, Hydro-Québec has adopted the following policies:

- The discount rate is based on the average rate of the interest rate curve on the measurement date of AA or AAA rated Canadian corporate bonds and takes into account the expected cash flows associated with the accrued benefit obligations.
- Past service costs arising from plan amendments and transitional balances relating to the pension plan and post-retirement benefits as at January 1, 1999, are amortized using the straight-line method over periods not exceeding active employees' average remaining years of service, which was 12 years as at January 1, 2011 and 2010.
- Amortization of actuarial gains or losses is recognized in operations for the year if the unamortized net actuarial gain or loss at the beginning of the year exceeds 10% of the value of the accrued benefit obligations or 10% of the market-related value of the plan assets, whichever is greater. The amortization corresponds to the excess divided by active employees' average remaining years of service.
- The expected return on pension plan assets is based on a market-related value determined by using a five-year moving average value for equity securities and by measuring other asset classes at fair value.

### ASSET RETIREMENT OBLIGATIONS

Hydro-Québec accounts for asset retirement obligations in the period in which the legal obligations with respect thereto are incurred, provided that a reasonable estimate of their fair value can be made. The corresponding costs of asset retirement are added to the carrying amount of the related long-lived asset and are amortized over its useful life. In subsequent financial years, any change due to the passage of time is recognized in operating expenses for the current year (accretion expense) and the corresponding amount is added to the carrying amount of the liability. Changes resulting from revisions to the timing or the amount of the undiscounted cash flows are recognized as an increase or decrease in the carrying amount of the liability arising from asset retirement obligations, and the related asset retirement cost is capitalized as part of the carrying amount of the related asset.

The cash flows required to settle asset retirement obligations are estimated on the basis of studies that use various assumptions concerning the methods and timing to be adopted for the retirement. Hydro-Québec periodically reviews the measurement of these obligations in light of the underlying assumptions and estimates, potential technological advances, and changes in applicable standards, laws and regulations.

### AGREEMENTS WITH LOCAL COMMUNITIES

Hydro-Québec has entered into various agreements with the local communities concerned by certain capital projects. The amounts under these agreements are recognized in Long-term debt if they fall within the definition of a liability, and the offsetting item is recognized in Property, plant and equipment. The recognized amounts are determined by discounting the future cash flows related to these agreements. The discount rate used is the interest rate on Hydro-Québec bonds at the date of initial recognition.

### RELATED PARTY TRANSACTIONS

In the normal course of business, Hydro-Québec enters into various business transactions, including electricity sales, with the Québec government and its agencies, as well as with other government corporations. These business transactions are measured at the exchange amount.

## Note 2 Changes to Accounting Policies

### RECENT CHANGES

#### 2011

*Assets and liabilities related to rate-regulated activities*

Hydro-Québec has retrospectively reclassified the FEP as an intangible asset, and certain regulatory variance accounts as financial assets and liabilities. These items were previously reported as regulatory assets and liabilities. These changes have made it possible to group together items with similar characteristics, and Management considers that they have therefore led to a more appropriate presentation of the items in question. In 2011, they resulted in a decrease of $96 million (increase of $146 million in 2010) in revenue and expenditure, without any impact on net income or equity. As at December 31, 2011, the changes had also resulted in a $19-million ($43 million in 2010) decrease in current regulatory assets; a $25-million ($18 million in 2010) increase in property, plant and equipment; a $974-million ($858 million in 2010) increase in intangible assets; a $231-million ($237 million in 2010) increase in other assets; and a $1,236-million ($1,114 million in 2010) decrease in long-term regulatory assets. Moreover, accounts payable and accrued liabilities had increased by $99 million ($15 million in 2010), and current and long-term regulatory liabilities had decreased by $118 million and $6 million, respectively ($58 million and $1 million in 2010).

*Business combinations*

On January 1, 2011, Hydro-Québec adopted the recommendations of Section 1582 of the *CICA Handbook*, "Business Combinations," which superseded Section 1581, "Business Combinations." Section 1582 establishes the principles and requirements for how the acquirer recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed and any non-controlling interest in the acquiree. It applies prospectively to business combinations for which the acquisition date is in a fiscal year beginning on or after January 1, 2011. The adoption of these recommendations had no material impact on the consolidated financial statements.

*Consolidated financial statements and non-controlling interests*

On January 1, 2011, Hydro-Québec adopted the recommendations of Section 1601 of the *CICA Handbook*, "Consolidated Financial Statements," and Section 1602, "Non-controlling Interests," which superseded Section 1600, "Consolidated Financial Statements." Section 1601 establishes standards for the preparation of consolidated financial statements. Section 1602 establishes standards for accounting for a non-controlling interest in a subsidiary in consolidated financial statements subsequent to a business combination. These sections apply to interim and annual financial statements relating to fiscal years beginning on or after January 1, 2011. The adoption of these recommendations had no material impact on the consolidated financial statements.

## Note 3 Effects of Rate Regulation on the Consolidated Financial Statements

The following information describes the impact on the consolidated financial statements of accounting methods and practices adopted by Hydro-Québec in accordance with the Régie's decisions with respect to regulated activities.

## REGULATORY ASSETS

### *Costs incurred until the rescission of dual-energy Rate BT*

The costs incurred until the rescission of dual-energy Rate BT were charged to a separate account and have been amortized on a straight-line basis over five years since the rescission date of April 1, 2006. These costs mainly include the deficit resulting from the variance between the supply cost recognized by the Régie and energy prices in effect, multiplied by the quantity of electricity delivered to customers at Rate BT between January 1, 2004, and March 31, 2006. Financial expenses arising from these costs were capitalized at the rate of return authorized by the Régie on the rate base until March 31, 2006. This accounting practice was authorized by the Régie in decisions D-2004-47, D-2004-170 and D-2006-34, which relate to Hydro-Québec's power distribution activities. Were these activities not regulated, the costs would have been recognized in operations for the year in which they were incurred, and net income for 2011 would have been $7 million higher ($30 million in 2010).

### *Costs related to the de-icing system at Lévis substation*

Certain costs related to the Lévis substation de-icing system, designed in the wake of the 1998 ice storm to secure the transmission lines supplying the greater Québec area, were recognized in a separate account. These costs have been depreciated using the straight-line method starting from the date of commissioning of the de-icing system, over a period corresponding to the average remaining useful life of the assets enhanced by the system. Financial expenses arising from these costs were capitalized at the rate of return authorized by the Régie on the rate base until such time as they were included in the rate base and amortization began. The Régie authorized this accounting practice in decision D-2004-175, which relates to Hydro-Québec's power transmission activities. Were these activities not regulated, the costs would have been recognized in operations for the year in which they were incurred, and net income for 2011 would have been $1 million higher ($1 million in 2010).

### *Costs related to the customer systems optimization project*

Certain costs incurred for the customer systems optimization (CSO) project that were not taken into account in setting rates were recognized in a separate account and will be amortized in 2012. Financial expenses arising from these costs were capitalized at the rate of return authorized by the Régie on the rate base until such time as amortization began. This accounting practice was authorized by the Régie in decision D-2011-058, which relates to Hydro-Québec's power distribution activities. Were these activities not regulated, the costs would have been recognized in operations for the year in which they were incurred, and net income for 2011 would have been $7 million lower ($3 million in 2010).

### REGULATORY ASSETS

| | Expected years of amortization | 2011 | 2010 |
|---|---|---|---|
| Costs incurred until rescission of dual-energy Rate BT | | – | 7 |
| Costs related to the de-icing system at Lévis substation | 2012–2047 | **10** | 11 |
| Costs related to the CSO project | 2012 | **10** | 3 |
| Other | 2012–2016 | **19** | 9 |
| | | **39** | 30 |
| Current portion | | **18** | |
| | | **21** | 30 |

### *Risks and uncertainties*

The risks and uncertainties related to the above regulatory assets are subject to periodic monitoring and assessment. Once Hydro-Québec considers that it is no longer likely that the net carrying amount of a regulatory asset will be taken into account in setting future rates, this amount is recognized in operations for the year in which the conclusion is reached.

## OTHER REGULATORY PRACTICES

Under Régie decisions D-2002-95 and D-2003-93, the compensation granted by the Québec government for the 1998 ice storm was applied against the cost of newly constructed property, plant and equipment; it is amortized over the remaining life of the retired assets, with the exception of the portion equivalent to the unamortized cost of these assets, which is amortized over 10 years. The straight-line method is used in both cases. Were these activities not regulated, the compensation would be amortized over the useful life of the newly constructed property, plant and equipment.

In decisions D-2002-95 and D-2004-47, the Régie prescribed capitalizing financial expenses to property, plant and equipment under construction and intangible assets under development related to regulated activities, according to the authorized rates of return on the rate bases. These rates, which are set using methods approved by the Régie, take into account a component associated with the cost of the debt and a component associated with the return on equity. Were these activities not regulated, financial expenses would be capitalized using the average cost of Hydro-Québec's long-term debt.

Under Régie decisions D-2002-95 and D-2003-93, the cost of dismantling assets that were retired and replaced, net of the salvage value, is added to the cost of newly constructed assets. Under Régie decision D-2011-039, which relates to Hydro-Québec's power transmission activities, the costs of restoring sites associated with replaced assets are also added to the cost of newly constructed assets, as of January 1, 2011. Were these activities not regulated, the related costs would be charged to operations in the year in which they are incurred.

Under Régie decisions D-2006-76 and D-2006-76R, contributions received for relocation or modification projects relating to certain transmission grid assets are recognized in a separate account and applied against property, plant and equipment. These contributions are amortized over the average useful life of assets for each project, using the straight-line method. Were these activities not regulated, the contributions would be amortized over the useful life of each fixed asset concerned.

Under Régie decisions D-2002-25, D-2002-288, D-2003-93 and D-2006-56, advertising and promotional costs, entertainment expenses, training costs and other EEP general expenses are recognized in the costs related to this intangible asset and amortized over 10 years on a straight-line basis. Were these activities not regulated, the costs and expenses would be recognized in operations for the year in which they are incurred.

Finally, the legal and regulatory context in which Hydro-Québec operates gives it the right to recover from its customers or the obligation to reimburse to them, as the case may be, the amounts corresponding to any variance between the actual amount of certain specific items and the amount provided in rate cases for these items. These items therefore give rise to financial assets or liabilities. They include the supply of electricity in excess of the heritage pool (decisions D-2005-34, D-2005-132, D-2006-34, D-2007-12 and D-2008-024), fuel purchases (decision D-2009-016), native-load transmission service (decisions D-2003-93, D-2006-34, D-2007-12 and D-2008-024), climate conditions (decisions D-2006-34 and D-2009-016), point-to-point transmission service (decisions D-2007-08 and D-2008-019) and pension costs (decisions D-2011-028 and D-2011-039).

## Note 4 Revenue

| | 2011 | 2010 |
|---|---|---|
| Electricity sales | 12,119 | 12,019 |
| Other | 273 | 465 |
| | 12,392 | 12,484 |

## Note 5 Depreciation and Amortization

| | 2011 | 2010 |
|---|---|---|
| Property, plant and equipment | 2,391 | 2,265 |
| Intangible assets | 213 | 194 |
| Regulatory assets | 9 | 83 |
| Write-offs | 10 | 23 |
| | 2,623 | 2,565 |

## Note 6 Taxes

| | 2011 | 2010 |
|---|---|---|
| Water-power royalties[a] | 598 | 561 |
| Public utilities tax[b] | 246 | 262 |
| Capital tax[c] | – | 51 |
| Municipal, school and other taxes | 22 | 35 |
| | 866 | 909 |

a) Water-power royalties payable to the Québec government totaled $593 million in 2011 ($557 million in 2010), including a balance due of $83 million as at December 31, 2011 (nil as at December 31, 2010).

b) The public utilities tax is paid to the Québec government.

c) Capital tax, which was paid to the Québec government, was abolished in 2011.

## Note 7 Financial Expenses

| | 2011 | 2010 |
|---|---|---|
| **Interest** | | |
| Interest on debt securities | 2,483 | 2,495 |
| Amortization of premiums, discounts and issue expenses related to debt securities | 148 | 127 |
| | 2,631 | 2,622 |
| **Net exchange (gain) loss** | (5) | 7 |
| **Guarantee fees related to debt securities**[a] | 188 | 183 |
| | 183 | 190 |
| Less | | |
| Capitalized financial expenses | 300 | 276 |
| Net investment income | 17 | 10 |
| | 317 | 286 |
| | 2,497 | 2,526 |

a) Guarantee fees related to debt securities are paid to the Québec government.

## Note 8 Property, Plant and Equipment

|  |  |  |  | 2011 |
|---|---|---|---|---|
|  | In service | Accumulated depreciation | Under construction | Net carrying amount |
| **Generation** |  |  |  |  |
| Hydraulic | 39,723 | 14,205 | 2,857 | **28,375** |
| Thermal | 782 | 721 | – | **61** |
| Nuclear | 1,921 | 1,550 | 852 | **1,223** |
| Other | 764 | 441 | 15 | **338** |
|  | 43,190 | 16,917 | 3,724 | **29,997** |
| **Transmission** |  |  |  |  |
| Substations and lines | 24,478 | 8,729 | 806 | **16,555** |
| Other | 2,216 | 1,306 | 104 | **1,014** |
|  | 26,694 | 10,035 | 910 | **17,569** |
| **Distribution** |  |  |  |  |
| Substations and lines | 13,082 | 5,605 | 375 | **7,852** |
| Other | 2,001 | 1,113 | 120 | **1,008** |
|  | 15,083 | 6,718 | 495 | **8,860** |
| **Construction** | 27 | 16 | 1 | **12** |
| **Corporate and Other Activities** | 1,117 | 712 | 58 | **463** |
|  | 86,111 | 34,398 | 5,188 | **56,901** |

|  |  |  |  | 2010 |
|---|---|---|---|---|
|  | In service | Accumulated depreciation | Under construction | Net carrying amount |
| **Generation** |  |  |  |  |
| Hydraulic | 37,990 | 13,549 | 3,107 | 27,548 |
| Thermal | 797 | 632 | – | 165 |
| Nuclear | 1,907 | 1,539 | 690 | 1,058 |
| Other | 757 | 432 | 20 | 345 |
|  | 41,451 | 16,152 | 3,817 | 29,116 |
| **Transmission** |  |  |  |  |
| Substations and lines | 23,538 | 8,093 | 791 | 16,236 |
| Other | 2,188 | 1,272 | 66 | 982 |
|  | 25,726 | 9,365 | 857 | 17,218 |
| **Distribution** |  |  |  |  |
| Substations and lines | 12,663 | 5,217 | 334 | 7,780 |
| Other | 1,927 | 1,072 | 84 | 939 |
|  | 14,590 | 6,289 | 418 | 8,719 |
| **Construction** | 28 | 17 | 3 | 14 |
| **Corporate and Other Activities** | 1,136 | 720 | 54 | 470 |
|  | 82,931 | 32,543 | 5,149 | 55,537 |

## Note 9 Intangible Assets

| | 2011 | | | 2010 | | |
|---|---|---|---|---|---|---|
| | Cost | Accumulated amortization | Net carrying amount | Cost | Accumulated amortization | Net carrying amount |
| **Intangible assets** | | | | | | |
| **Subject to amortization** | | | | | | |
| EFP | 1,403 | 429 | **974** | 1,183 | 325 | 858 |
| Software and licences | 1,392 | 869 | **523** | 1,385 | 841 | 544 |
| Development costs | 41 | 23 | **18** | 45 | 23 | 22 |
| Patents | 22 | 7 | **15** | 11 | 5 | 6 |
| | 2,858 | 1,328 | **1,530** | 2,624 | 1,194 | 1,430 |
| **Not subject to amortization** | | | | | | |
| Servitudes | | | **375** | | | 371 |
| Water power rights | | | **282** | | | 282 |
| | | | **657** | | | 653 |
| | | | **2,187** | | | 2,083 |

The additions of internally generated intangible assets subject to amortization totaled $308 million in 2011 ($301 million in 2010).

## Note 10 Investments

| | 2011 | 2010 |
|---|---|---|
| **At equity** | | |
| Churchill Falls (Labrador) Corporation Limited | **106** | 97 |
| CITEQ inc. | **(5)** | (5) |
| | **101** | 92 |
| **Other** | **23** | 22 |
| | **124** | 114 |

## Note 11 Other Assets

| | Note | 2011 | 2010 |
|---|---|---|---|
| Accrued benefit assets | 21 | **2,887** | 2,361 |
| Government reimbursement for the 1998 ice storm[a] | | **67** | 74 |
| Receivables[b] | | **238** | 243 |
| Sinking fund | | **198** | – |
| Other | | **100** | 88 |
| | | **3,490** | 2,766 |

a) Payable in quarterly installments of $6 million until January 15, 2010, followed by quarterly installments of $4 million between April 15, 2010, and October 15, 2019, and a final installment of $10.4 million on January 15, 2020. These installments include interest at an annual rate of 7.2%. The current portion, presented under Accounts receivable and other receivables, totaled $8 million as at December 31, 2011 ($8 million as at December 31, 2010). The fair value of this financial asset, including the current portion, was $91 million as at December 31, 2011 ($96 million as at December 31, 2010).

b) Including revenue variances of $231 million related to climate conditions ($212 million as at December 31, 2010), for which financial expenses were capitalized at the rate of return authorized by the Régie to ensure that their carrying amount agrees with their fair value. These amounts are recovered over a five-year period.

## Note 12 Long-Term Debt

Long-term debt is mainly composed of bonds, medium-term notes and other debts, including liabilities under agreements entered into with local communities. The following table presents a breakdown of the debt at amortized cost, including the current portion, by currency at the time of issue and at the time of repayment. Swaps related to long-term debt were taken into account in determining the percentages of debt by currency at the time of repayment.

| | 2011 | | | | 2010 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | At time of issue | At time of repayment | | | At time of issue | At time of repayment |
| | In Canadian dollars and other currencies | At closing exchange rates as at the balance sheet date | % | % | In Canadian dollars and other currencies | At closing exchange rates as at the balance sheet date | % | % |
| **Hydro-Québec's debt** | | | | | | | | |
| Canadian dollars[a] | 32,755 | **32,755** | **79** | **98** | 29,869 | 29,869 | 78 | 96 |
| U.S. dollars | 8,021 | **8,148** | **20** | **2**[b] | 8,047 | 7,989 | 21 | 4[b] |
| Other currencies | | | | | | | | |
| Euros | 60 | **79** | – | – | 60 | 80 | | |
| Pounds sterling | 199 | **314** | **1** | – | 239 | 370 | 1 | |
| Yen | 2,000 | **26** | – | – | 2,002 | 24 | | |
| | | **41,322** | | | | 38,332 | | |
| **Subsidiaries' debt** | | | | | | | | |
| U.S. dollars | 17 | **17** | – | – | 20 | 20 | | |
| | | **41,339** | **100** | **100** | | 38,352 | 100 | 100 |
| Plus | | | | | | | | |
| Adjustment for fair value hedged risk | | **430** | | | | 20 | | |
| | | **41,769** | | | | 38,372 | | |
| Less | | | | | | | | |
| Current portion | | **1,025** | | | | 1,933 | | |
| | | **40,744** | | | | 36,439 | | |

a) Including non-interest-bearing debts other than bonds and medium-term notes for a discounted amount of $939 million as at December 31, 2011 ($781 million as at December 31, 2010).

b) Of this amount, 100% was used to hedge sales in U.S. dollars as at December 31, 2011 (99.4% as at December 31, 2010).

### INTEREST RATES

The following table shows interest rates, which take into account stated interest rates on bonds and medium-term notes, including premiums, discounts and issuance costs, as well as the effect of swaps related to long-term debt:

| % | 2011 | | | | 2010 |
|---|---|---|---|---|---|
| Maturity | Canadian dollar | U.S. dollar | Other currencies | Weighted average | Weighted average |
| 1 to 5 years | 2.01 | 3.66 | 9.58 | **3.34** | 6.21 |
| 6 to 10 years | 10.49 | 9.45 | 1.86 | **10.22** | 10.02 |
| 11 to 15 years | 8.96 | 8.40 | – | **8.60** | 9.17 |
| 16 to 20 years | 3.72 | 9.63 | | **7.64** | 9.41 |
| 21 to 25 years | 5.61 | – | | **5.61** | 5.30 |
| 26 to 30 years | 5.11 | – | | **5.11** | 5.16 |
| 31 to 35 years | 4.89 | | – | **4.89** | 4.93 |
| 36 to 40 years | 4.55 | – | – | **4.55** | 4.79 |
| 41 to 45 years | | | | **–** | |
| 46 to 50 years | 6.53 | – | – | **6.53** | 6.62 |
| 51 to 55 years | – | – | | **–** | |
| Weighted average | 5.29 | 8.69 | 9.35 | **5.70** | 6.37 |

As at December 31, 2011, the floating rate portion of long-term debt amounted to 6.1%, or 6.8% including perpetual debt (10.6%, or 11.3% including perpetual debt, as at December 31, 2010).

### FAIR VALUE

As at December 31, 2011, the fair value of the long-term debt, including the current portion, amounted to $57,622 million ($49,141 million as at December 31, 2010). Including swaps and forward contracts related to long-term debt, it totaled $57,883 million ($50,097 million as at December 31, 2010). Fair value is obtained by discounting future cash flows, based on forward interest rates derived from interest rates at the close of business on the balance sheet date for similar instruments traded on capital markets. Changes in fair value reflect sensitivity to capital market interest rates. However, Management's primary intention is to hold these debt securities until maturity.

### CREDIT FACILITY AND LINES OF CREDIT

Hydro-Québec has an undrawn credit facility of US$2,000 million ($2,034 million), composed of two tranches, one of US$360 million ($366 million) and the other of US$1,640 million ($1,668 million), including a US$750-million ($763 million) swing loan, which will expire in 2012 and 2013. Any debt securities will bear interest at a rate based on the London Interbank Offered Rate (LIBOR), except for the swing loan, which is at the U.S. base rate. Hydro-Québec also has access to undrawn lines of credit totaling $396 million, which are renewed automatically in the absence of notice to the contrary and bear interest at the prime rate.

## Note 13 Asset Retirement Obligations

Liabilities arising from asset retirement obligations relate to the costs to be incurred in dismantling Gentilly-2 nuclear generating station at the end of its useful life, the removal of spent nuclear fuel resulting from its operation, and the dismantling of thermal generating stations and certain fuel tanks and transmission substations. The costs related to dismantling Gentilly-2 generating station are based on the assumption that Hydro-Québec will in fact refurbish it.

Hydro-Québec has also identified asset retirement obligations relating to transmission activities for which no liability has been recognized since it expects to use these assets for an undetermined period. These relate to property, plant and equipment for which Hydro-Québec does not have sufficient information to accurately establish a schedule for the obligations. A liability resulting from these asset retirement obligations will be recognized in the period in which there is sufficient information to establish such a schedule.

The aggregate carrying amount of the asset retirement obligations is as follows:

| | | | | **2011** |
|---|---|---|---|---|
| | Dismantling of nuclear generating station[a] | Removal of spent nuclear fuel[a] | Dismantling of other assets | Total |
| Balance, beginning of year | 197 | 187 | 120 | **504** |
| Liabilities incurred | | 2 | 19 | **21** |
| Accretion expense | 11 | 17 | 6 | **34** |
| Liabilities settled | | (1) | (3) | **(4)** |
| Revision of estimated cash flows and expected timing of payments | | (4) | (11) | **(15)** |
| Balance, end of year | 208 | 201 | 131 | **540** |

| | | | | 2010 |
|---|---|---|---|---|
| | Dismantling of nuclear generating station[a] | Removal of spent nuclear fuel[a] | Dismantling of other assets | Total |
| Balance, beginning of year | 185 | 170 | 112 | 467 |
| Liabilities incurred | | 2 | 1 | 3 |
| Accretion expense | 12 | 16 | 5 | 33 |
| Liabilities settled | | (1) | (1) | (2) |
| Revision of estimated cash flows and expected timing of payments | | | 3 | 3 |
| Balance, end of year | 197 | 187 | 120 | 504 |

a) The Québec government has provided an irrevocable financial guarantee of up to $685 million to the Canadian Nuclear Safety Commission (CNSC) for the performance of Hydro-Québec's obligations with regard to the cost of dismantling Gentilly-2 nuclear generating station at the end of its useful life and the removal of spent nuclear fuel. This financial guarantee is required under the CNSC licence issued to Hydro-Québec to operate the generating station until June 30, 2016.

## Note 13 Asset Retirement Obligations (continued)

The carrying amount of the asset retirement obligations is based on the following key assumptions:

| | Dismantling of nuclear generating station[a] | Removal of spent nuclear fuel | Dismantling of other assets |
|---|---|---|---|
| Estimated cash flows (in constant dollars) required to settle the obligations[b] | | | |
| As at December 31, 2011 | 951 | 624 | 173 |
| As at December 31, 2010 | 932 | 667 | 170 |
| Expected timing of payment of the cash flows required to settle the obligations | | | |
| As at December 31, 2011 | Between 2040 and 2071 | Between 2012 and 2164 | Between 2012 and 2092 |
| As at December 31, 2010 | Between 2040 and 2071 | Between 2011 and 2159 | Between 2011 and 2092 |
| Credit quality-adjusted, risk-free rate (%) | | | |
| Initial recognition of obligations | 6.4 | 6.4 | Between 1.0 and 6.4 |
| Subsequent recognition of obligations | Between 5.0 and 5.5 | 5.5 and 5.7 | Between 1.3 and 6.1 |

[a] The abandonment of the refurbishment project for the nuclear generating station would result in an increase on the order of $320 million in related obligations, due to the change in timing of the payment of the related cash flows (assuming all the other parameters of the calculation remained the same).

[b] Inflation rates varying between 1.8% and 3.7% were used to determine the asset retirement obligations.

### HYDRO-QUÉBEC NUCLEAR FUEL WASTE MANAGEMENT TRUST FUND

On November 15, 2002, the *Nuclear Fuel Waste Act* came into force. Under this Act, Canadian nuclear energy corporations were required to set up a waste management organization whose role would be to propose a long-term approach for managing spent nuclear fuel to the Government of Canada. Each nuclear energy corporation was also required to set up a trust fund to finance the costs of long-term management of its nuclear fuel waste. In November 2005, the Nuclear Waste Management Organization (NWMO) filed its report with the Government of Canada and recommended an approach which was adopted in June 2007.

In October 2007, the members of the NWMO ratified an agreement that sets forth a formula for financing the costs of long-term nuclear fuel waste management. This formula, approved by the Canadian Minister of Natural Resources in April 2009, is used to determine each member's share for the coming years, based on the number of spent nuclear fuel bundles produced at a given date. It also takes into account the date on which each member plans to start shipping spent nuclear fuel bundles to the future national repository site.

The amounts deposited in the trust funds can only be used to finance the application of the approach adopted by the Government of Canada. As at December 31, 2011, the investments held in the Hydro-Québec trust fund were composed of Hydro-Québec securities, the fair value of which totaled $99 million ($77 million as at December 31, 2010).

Hydro-Québec's nuclear fuel waste management trust fund is considered a variable interest entity of which Hydro-Québec is the primary beneficiary.

## Note 14 Other Long-Term Liabilities

| | Note | 2011 | 2010 |
|---|---|---|---|
| Accrued benefit liabilities | 21 | **789** | 761 |
| Accounts payable | | **94** | 96 |
| | | **883** | 857 |

## Note 15 Perpetual Debt

Perpetual notes in the amount of $281 million (US$276 million) as at December 31, 2011, and $288 million (US$289 million) as at December 31, 2010, bear interest at LIBOR plus 0.0625%, as determined semiannually. The notes are redeemable at Hydro-Québec's option. In 2011, a portion amounting to $13 million was repurchased on the secondary market and then canceled. No portion was redeemed in 2010. Various derivative instruments recorded at fair value are used to mitigate the currency risk associated with this debt.

As at December 31, 2011 and 2010, the rate applicable to the perpetual notes was 0.6%. As at December 31, 2011, the fair value of these notes was $209 million ($263 million as at December 31, 2010). Fair value is obtained by discounting future cash flows, based on forward interest rates derived from interest rates at the close of business on the balance sheet date for similar instruments traded on capital markets.

# Note 16 Financial Instruments

In the course of its operations, Hydro-Québec carries out transactions that expose it to certain financial risks, such as market, liquidity and credit risk. Exposure to such risks and the impact on operating results are significantly reduced through careful monitoring and implementation of strategies that include the use of derivative instruments.

## MARKET RISK

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate as a result of changes in market prices. Hydro-Québec is exposed to three main types of market risk: currency risk, interest rate risk and risk associated with aluminum and energy prices. Active integrated management of these three types of risk aims to limit their impact on operating results through mitigation measures so that exposure to each risk is reduced to an acceptable level.

## MANAGEMENT OF LONG-TERM RISK

### *Management of risk associated with sales in U.S. dollars*

Currency risk – Hydro-Québec uses currency swaps and a portion of its U.S. dollar–denominated debt to manage currency risk associated with probable U.S.-dollar sales, designating them as cash flow hedges. The impact of these hedging transactions on operating results is recognized in Revenue.

### *Management of risk associated with debt*

Currency risk and interest rate risk – Hydro-Québec uses currency swaps to manage the currency risk associated with long-term debt and perpetual debt, as well as forward contracts and interest-rate swaps to modify long-term exposure to interest rate risk. When designated as hedging items, these derivative instruments are recognized as cash flow hedges or fair value hedges, depending on the risk hedged. The impact on operating results of foreign currency hedging transactions and those associated with debt interest rates is recognized in Financial expenses.

The following table shows the notional amounts of swaps and forward contracts used to manage risk associated with U.S.-dollar sales and the debt, expressed in Canadian dollars and foreign currencies:

| | | | | | 2011[a] | 2010[a] |
|---|---|---|---|---|---|---|
| Maturity | 1 to 5 years | 6 to 10 years | 11 to 15 years | 16 to 20 years | Total | Total |
| **Swaps** | | | | | | |
| Canadian dollars | 502 | (1,044) | (3,169) | (2,448) | **(6,159)** | (6,845) |
| U.S. dollars | 139 | 960 | 2,700 | 2,070 | **5,869** | 6,302 |
| Other currencies | | | | | | |
| Euros | 61 | — | — | — | **61** | 61 |
| Pounds sterling | 200 | — | — | — | **200** | 240 |
| Yen | 1,000 | 1,000 | — | — | **2,000** | 2,000 |
| **Forward contracts** | | | | | | |
| U.S. dollars | 1,279 | — | — | — | **1,279** | 290 |

a) Figures in parentheses represent amounts to be paid.

The following table shows the fair value of swaps and forward contracts used to manage risk associated with U.S.-dollar sales and the debt, expressed in Canadian dollars:

| | 2011 | 2010 |
|---|---|---|
| Instruments designated as cash flow hedges for U.S.-dollar sales[a] | **212** | 213 |
| Instruments designated as cash flow hedges for debt | **(1,817)** | (1,928) |
| Instruments designated as fair value hedges for debt | **489** | (58) |
| | **(1,116)** | (1,773) |
| Instruments not designated as hedges[b] | **1,263** | 1,221 |
| | **147** | (552) |

a) A portion of the long-term debt, with a nominal amount of US$626 million as at December 31, 2011 (US$1,403 million as at December 31, 2010), was also designated as a cash flow hedge for U.S.-dollar sales.

b) Transactions carried out as part of Hydro-Québec's risk management, including $1,097 million in consideration of amounts received or disbursed with respect to credit risk mitigation agreements in 2011 ($1,030 million in 2010).

## MANAGEMENT OF SHORT-TERM RISK

Currency risk – Hydro-Québec uses forward contracts to manage its foreign currency risk exposure over the short term. When designated as hedging items, these derivative instruments are recognized as cash flow hedges. The impact of currency risk hedging transactions on operating results is recognized in the line item affected by the hedged item, namely Revenue, Electricity and fuel purchases, or Financial expenses. The nominal amount of open positions as at December 31, 2011, was US$787 million in sales contracts (US$78 million as at December 31, 2010).

Interest rate risk – Hydro-Québec uses interest rate swaps and forward rate agreements to manage short-term interest rate risk. When designated as hedging items, these derivative instruments are recognized as cash flow hedges. The impact on operating results of transactions to hedge short-term interest rate risk is recognized in Financial expenses.

Price risk – Hydro-Québec uses mainly swaps and commodity futures to manage risk resulting from fluctuations in aluminum and energy prices. When designated as hedging items, these derivative instruments are recognized as cash flow hedges. The impact on operating results of transactions to hedge the risk of variability in aluminum and energy prices is recognized in the line item affected by the hedged item, namely Revenue or Electricity and fuel purchases. To hedge exposure to variability in aluminum and energy prices, Hydro-Québec has traded derivative instruments for which open positions as at December 31, 2011, totaled 99,900 tonnes of aluminum (158,300 tonnes as at December 31, 2010), as well as electricity swaps for which open positions as at December 31, 2011, were 10.8 TWh (7.5 TWh as at December 31, 2010). As at December 31, 2011, there were no open positions for natural gas futures (4.0 million MBtu as at December 31, 2010).

# Note 16 Financial Instruments (continued)

The following table presents the fair value of derivative instruments used to manage short-term financial risk, depending on whether or not they are designated as hedges:

| | **2011** | 2010 |
|---|---|---|
| Instruments designated as cash flow hedges | **133** | (33) |
| Instruments not designated as hedges | **(4)** | 4 |
| | **129**[a] | (29)[a] |

a) Of which $3 million ($4 million in 2010) was equal to the aggregate of financial instruments measured on the basis of quoted market prices (Level 1) and $126 million [$(33) million in 2010] to instruments measured through techniques based on observable market inputs (Level 2).

## EFFECT OF HEDGES

### *Effect of hedges on operating results*

#### *Effect of cash flow hedges*

As at December 31, 2011, the net loss related to the ineffectiveness of cash flow hedges recognized in operations totaled $3 million ($25 million as at December 31, 2010).

As at December 31, 2011, Hydro-Québec estimated at $192 million the amount of net gains presented in Accumulated other comprehensive income that would be reclassified to operations in the next 12 months ($261 million as at December 31, 2010).

In 2011, Hydro-Québec reclassified a net loss of $10 million from Accumulated other comprehensive income to operations (no amount reclassified in 2010) as a result of the discontinuance of cash flow hedges.

As at December 31, 2011, the maximum period during which Hydro-Québec hedged its exposure to the variability of cash flows related to anticipated transactions was five years (six years as at December 31, 2010).

#### *Effect of fair value hedges*

As at December 31, 2011, the net gain related to the ineffectiveness of fair value hedges recognized in operations totaled $9 million (net loss of $10 million as at December 31, 2010).

#### *Effect of revaluation of derivative instruments not designated as hedges*

As at December 31, 2011, the net gain recognized in operations as a result of the revaluation, at fair value, of derivative instruments that had not been accounted for using hedge accounting totaled $71 million ($10 million as at December 31, 2010). These instruments are essentially related to risk management transactions.

### *Sensitivity analyses*

The risks associated with variability in foreign exchange rates, interest rates, and aluminum and energy prices are the subject of integrated management aimed at limiting the impact of such risks on operating results. Most of the derivative instruments traded are designated as cash flow hedges or fair value hedges and therefore reduce the volatility of operating results, except for the ineffective portion of the hedges, which is insignificant. Derivative instruments which are not designated as hedges, but which nonetheless serve to hedge at-risk opposite positions, also reduce the volatility in operating results. The sensitivity of operating results is thus limited to net exposure to unhedged risks.

As at December 31, 2011, had the exchange rate ($C/$US) been 5% higher or lower, net income would have been $8 million higher or lower, respectively ($7 million as at December 31, 2010), while Other comprehensive income would have been $136 million higher or lower, respectively ($71 million as at December 31, 2010). The analysis is based on financial assets and liabilities denominated in U.S. dollars, including a cash amount of US$124 million (US$53 million as at December 31, 2010). It also takes into account the impact of hedged sales in U.S. dollars.

In 2011, had interest rates been 50 basis points higher or lower, net income would have been $11 million higher or $13 million lower, respectively ($12 million lower or higher, respectively, in 2010), while Other comprehensive income would have been $258 million higher or $269 million lower ($233 million higher or $179 million lower in 2010).

In 2011, had the price of aluminum been 5% higher or lower, net income would have been $2 million higher or lower, respectively ($3 million in 2010), taking into account the impact of hedged sales, and Other comprehensive income would have been $10 million lower or higher, respectively ($26 million in 2010).

## LIQUIDITY RISK

Liquidity risk is the risk that Hydro-Québec will have difficulty meeting commitments related to its financial liabilities.

Hydro-Québec's exposure is reduced by a large volume of cash flows from operations, a diversified portfolio of highly liquid or readily convertible instruments traded with high-quality counterparties, preauthorized sources of financing, the quality of Hydro-Québec's signature on financial markets, diversified sources of financing and its management of the proportions of floating-rate debt and debt repayable in foreign currency.

Moreover, as at December 31, 2011, $39,643 million in long-term debt, perpetual debt and borrowings was guaranteed by the Québec government ($36,932 million as at December 31, 2010).

Maturities of financial liabilities are presented in the following table. The amounts reported are contractual undiscounted cash flows, representing payments of principal and interest for financial liabilities as at December 31, 2011.

| Maturity | Borrowings[a] | Accounts payable and accrued liabilities | Dividend payable | Long-term debt | Derivative instruments[b] |
|---|---|---|---|---|---|
| 2012 | 52 | 1,687 | 1,958 | 3,248[c] | 427 |
| 2013 | – | 21 | – | 3,076 | 415 |
| 2014 | – | 15 | – | 4,336 | 154 |
| 2015 | – | 25 | – | 4,591 | 268 |
| 2016 | – | – | – | 3,676 | 129 |
| 1 to 5 years | 52 | 1,748 | 1,958 | 18,927 | 1,393 |
| 6 to 10 years | – | – | – | 15,722 | 567 |
| 11 to 15 years | – | – | – | 12,153[c] | 724 |
| 16 to 20 years | – | – | – | 9,806 | 460 |
| 21 to 25 years | – | – | – | 10,359 | – |
| 26 to 30 years | – | – | – | 8,125 | – |
| 31 to 35 years | – | – | – | 8,730 | – |
| 36 to 40 years | – | – | – | 7,552 | – |
| 41 to 45 years | – | – | – | 1,656 | – |
| 46 to 50 years | – | – | – | 1,462 | – |
| 51 to 55 years | – | – | – | 185 | – |
| 56 years and over | – | – | – | 3,056 | – |
| Total | **52** | **1,748** | **1,958** | **97,733** | **3,144** |
| Carrying amount | 52[d] | 1,748[d,e,f] | 1,958[d] | 41,769[g] | 2,359 |

a) As at December 31, 2011, the weighted average interest rate on interest-bearing borrowings was 1.51% (0.75% as at December 31, 2010).

b) Agreements entered into with certain counterparties to limit the market value of these financial instruments could result in cash receipts or payments at dates different from the initially scheduled maturity.

c) Certain debts carry sinking fund requirements.

d) Because of their short-term maturities, the carrying amount of these financial liabilities approximates their fair value.

e) Including liabilities of $99 million related to variances between the forecasted and actual amounts of certain revenue and expenditure items ($15 million as at December 31, 2010), which are classified in Accounts payable and accrued liabilities.

f) Of this amount, $1,687 million is recorded in Accounts payable and accrued liabilities and $61 million in Other long-term liabilities.

g) Including the current portion.

Contractual maturities of perpetual debt, whose terms and conditions are described in Note 15, Perpetual Debt, result in biennial interest flows.

## CREDIT RISK

Credit risk is the risk that one party to a financial asset will fail to meet its obligations.

Hydro-Québec is exposed to credit risk related to cash and cash equivalents, short-term investments and derivative instruments traded with financial institutions. It is also exposed to credit risk related to accounts receivable and other receivables arising primarily from its day-to-day energy sales in and outside Québec. Credit risk is limited to the carrying amount presented under assets on the balance sheet, which approximates fair value.

### *Cash and cash equivalents, short-term investments and derivative instruments*

In order to reduce its credit risk exposure, Hydro-Québec deals with Canadian and international issuers and financial institutions with high credit ratings. In addition, it applies policies to limit risk concentration as well as various monitoring programs and sets credit limits for each counterparty. Through prior agreements, it can also limit the market value of the main derivative instrument portfolios. Any variation in market value beyond the agreed-upon limit results in a cash receipt or payment. As at December 31, 2011, substantially all counterparties dealing with Hydro-Québec had a rating over A, and none of them had defaulted on their obligations to Hydro-Québec.

## Note 16 Financial Instruments (continued)

*Accounts receivable and other receivables*

Exposure to credit risk from energy sales is limited due to Hydro-Québec's large and diverse customer base. Management believes that Hydro-Québec is not exposed to a significant credit risk, particularly because sales in Québec are billed at rates that allow for recovery of costs based on the terms and conditions set by the Régie. Moreover, Hydro-Québec holds as collateral customer deposits totaling $72 million ($59 million as at December 31, 2010), of which $21 million ($15 million as at December 31, 2010) is recognized in Accounts payable and accrued liabilities and $51 million ($44 million as at December 31, 2010) in Other long-term liabilities.

The value of accounts receivable, by age and net of the related allowance for doubtful accounts, is presented in the following table:

| | 2011 | 2010 |
|---|---|---|
| **Accounts receivable** | | |
| Under 30 days[a] | 1,324 | 1,362 |
| 30 to 60 days | 48 | 47 |
| 61 to 90 days | 20 | 25 |
| Over 90 days | 138 | 148 |
| | 1,530 | 1,582 |
| **Other receivables**[b] | 214 | 232 |
| **Accounts receivable and other receivables**[c] | 1,744 | 1,814 |

[a] Including unbilled electricity deliveries, which totaled $1,062 million as at December 31, 2011 ($1,092 million as at December 31, 2010).

[b] Including a $15 million financial guarantee ($16 million in 2010) covering certain financial instruments held at year-end.

[c] Including US$113 million (US$107 million in 2010) translated at the exchange rate in effect at the balance sheet date.

The allowance for doubtful accounts increased by $34 million ($29 million in 2010) to $312 million as at December 31, 2011 ($278 million as at December 31, 2010). The allowance is based on a specific percentage deemed appropriate for each account age group and customer standing.

## Note 17 Interests in Joint Ventures

The proportionate share of the joint venture items included in the consolidated financial statements is presented in the following table. These joint ventures consist of the interests managed by Hydro-Québec Production and the Groupe – Technologie.

| | 2011 | 2010 |
|---|---|---|
| **Operations** | | |
| Revenue | 132 | 115 |
| Expenditure and financial expenses | 75 | 85 |
| Net income | 57 | 30 |
| **Balance Sheets** | | |
| Current assets | 24 | 11 |
| Long-term assets | 654 | 665 |
| Current liabilities | 8 | 5 |
| Long-term liabilities | 18 | 21 |
| Net assets | 652 | 650 |
| **Cash Flows** | | |
| Operating activities | 68 | 6 |
| Investing activities | (5) | (4) |
| Financing activities | (3) | (4) |
| Net change in cash and cash equivalents | 60 | (2) |

# Note 18 Equity

## SHARE CAPITAL

The authorized share capital consists of 50,000,000 shares with a par value of $100 each, of which 43,741,090 shares were issued and paid up as at December 31, 2011 and 2010.

## RETAINED EARNINGS

Under the *Hydro-Québec Act*, the dividends to be paid by Hydro-Québec are declared once a year by the Québec government, which also determines the terms and conditions of payment. For a given financial year, the dividend cannot exceed the distributable surplus, equal to 75% of net income. This calculation is based on the consolidated financial statements. However, in respect of a given financial year, no dividend may be declared in an amount that would have the effect of reducing the capitalization rate to less than 25% at the end of the year. All or a portion of the distributable surplus that has not been subject to a dividend declaration may no longer be distributed to the shareholder as a dividend.

For 2011, the dividend is $1,958 million ($1,886 million for 2010).

## ACCUMULATED OTHER COMPREHENSIVE INCOME

### *CASH FLOW HEDGES*

| | **2011** | 2010 |
|---|---|---|
| Balance, beginning of year | **227** | 709 |
| Change for the year | **(385)** | (482) |
| Balance, end of year | **(158)** | 227 |

# Note 19 Capital Management

Hydro-Québec manages its capital in such a way as to meet its shareholder's expectations, safeguard its funds at all times and sustain its growth. It fosters a management environment allowing it to enhance the long-term value of its assets and equity, ensure its financial sustainability, preserve its financing capability and safeguard its funds and securities.

In addition to equity, capital includes long-term debt, perpetual debt, borrowings and derivative instruments.

Hydro-Québec uses its capitalization rate to monitor its capital structure. It aims to maintain capitalization at no less than 25%.

## CAPITALIZATION

| | **2011** | 2010 |
|---|---|---|
| Equity | **18,834** | 18,566 |
| Long-term debt, including current portion | **41,769** | 38,372 |
| Perpetual debt | **281** | 288 |
| Borrowings | **52** | 18 |
| Derivative instruments | **(276)** | 581 |
| Total | **60,660** | 57,825 |
| Capitalization rate (%)[a] | **31.0** | 32.1 |

[a] Equity divided by the sum of equity, long-term debt (including current portion), perpetual debt, borrowings and derivative instrument liabilities, less derivative instrument assets.

In 2011, Hydro-Québec's capital management objectives were unchanged from 2010.

## Note 20 Supplementary Cash Flow Information

| | 2011 | 2010 |
|---|---|---|
| **Change in non-cash working capital items** | | |
| Accounts receivable and other receivables | 62 | 141 |
| Materials, fuel and supplies | 78 | 15 |
| Accounts payable and accrued liabilities | 109 | 8 |
| Accrued interest | (79) | (11) |
| | 170 | 153 |
| **Investing activities not affecting cash** | | |
| Increase in property, plant and equipment and intangible assets | 239 | 115 |
| **Interest paid** | 2,180 | 2,149 |

## Note 21 Employee Future Benefits

Hydro-Québec's pension plan (the "Pension Plan") is a fully funded contributory plan that ensures pension benefits based on the number of years of service and an average of the best five years of earnings. These benefits are indexed annually based on a rate which is the greater of the inflation rate, up to a maximum of 2%, and the inflation rate less 3%.

Hydro-Québec also offers other post-retirement benefits as well as post-employment benefits. Post-retirement benefits are provided by group life, medical and hospitalization insurance plans, which are contributory plans with contributions adjusted annually. Post-employment benefits are under non-contributory salary insurance plans, which pay short- and long-term disability benefits. Most of these plans are not funded, with the exception of the long-term disability salary insurance plan, which is fully funded, and the supplementary group life insurance plan, which is partially funded.

All Hydro-Québec's plans are defined benefit plans. The accrued benefit obligations of these plans, valued by independent actuaries, and their assets, at fair value, are valued as at December 31 of each year. The most recent actuarial valuation of the Pension Plan for funding purposes was as at December 31, 2010, at which date the plan was funded at 100.2%. The next valuation will be as at December 31, 2011.

### CHANGES IN ACCRUED BENEFIT OBLIGATIONS AND PLAN ASSETS, AT FAIR VALUE

| | Pension Plan | | Other plans | |
|---|---|---|---|---|
| | 2011 | 2010 | 2011 | 2010 |
| **Accrued benefit obligations** | | | | |
| Balance, beginning of year | 14,984 | 12,742 | 983[a] | 889 |
| Current service cost | 281 | 227 | 44 | 45 |
| Employee contributions | 124 | 120 | – | |
| Benefit payments and refunds | (664) | (602) | (53) | (55) |
| Interest on obligations | 823 | 778 | 53 | 54 |
| Actuarial loss | 1,355 | 1,719 | 34 | 95 |
| Balance, end of year | 16,903 | 14,984 | 1,061 | 1,028 |
| **Plan assets, at fair value** | | | | |
| Balance, beginning of year | 14,226 | 12,390 | 70 | 65 |
| Actual return on plan assets | 613 | 1,708 | 2 | 2 |
| Employee contributions | 124 | 120 | – | |
| Current contributions by Hydro-Québec | 263 | 296 | 5 | 13 |
| Special contribution by Hydro-Québec | 386 | 350 | – | |
| Benefit payments and refunds | (664) | (602) | (9) | (10) |
| Administrative and management expenses | (51) | (36) | – | |
| Balance, end of year | 14,897 | 14,226 | 68 | 70 |
| **Deficit, end of year** | (2,006) | (758) | (993) | (958) |
| Unamortized past service cost | 185 | 235 | – | |
| Unamortized net actuarial loss | 5,013 | 3,341 | 179[a] | 157 |
| Unamortized transitional (asset) obligation | (305) | (457) | 25[a] | 40 |
| **Accrued benefit assets (liabilities)** | 2,887 | 2,361 | (789) | (761) |

[a] Including an adjustment related to the calculation of basic life insurance.

## ADDITIONAL DISCLOSURES WITH RESPECT TO PLAN ASSETS

At year end, plan assets, at fair value, consisted of:

| | Pension Plan | | Other plans | |
|---|---|---|---|---|
| % | **2011** | 2010 | **2011** | 2010 |
| Bonds | **50** | 50 | **92** | 93 |
| Equities | **40** | 40 | **–** | – |
| Real estate investments | **9** | 8 | **–** | – |
| Other | **1** | 2 | **8** | 7 |
| | **100** | 100 | **100** | 100 |

Assets of the plans include the following securities issued by Hydro-Québec and by the Québec government and some of its agencies:

| | Pension Plan | | Other plans | |
|---|---|---|---|---|
| | **2011** | 2010 | **2011** | 2010 |
| Bonds | **1,708** | 1,828 | **62** | 65 |

## CASH PAYMENTS

Cash payments made by Hydro-Québec for employee benefit plans consist of the contributions paid to the funded plans and the benefits paid to employees and pensioners under unfunded plans. The cash payment details are as follows:

| | **2011** | 2010 |
|---|---|---|
| Contributions by Hydro-Québec | | |
| Pension Plan | **649** | 646 |
| Other funded plans | **5** | 13 |
| Benefit payments | | |
| Unfunded plans | **43** | 45 |
| | **697** | 704 |

In accordance with the actuarial valuation for funding purposes, Hydro-Québec made current contributions of $263 million in 2011 ($296 million in 2010), including additional contributions of $110 million ($156 million in 2010), to cover the current service cost, and a special contribution of $386 million ($350 million in 2010) to cover part of the unfunded actuarial liability. The special contributions paid in 2011 and 2010 take into account certain temporary relief measures introduced by *An Act to amend the Supplemental Pension Plans Act and other legislative provisions in order to reduce the effects of the financial crisis on plans covered by the Act* and, in particular, the extension of the period to cover the unfunded actuarial liability.

## ELEMENTS OF ACCRUED BENEFIT COST RECOGNIZED FOR THE YEAR

| | Pension Plan | | Other plans | |
|---|---|---|---|---|
| | **2011** | 2010 | **2011** | 2010 |
| Current service cost[a] | **281** | 227 | **44** | 45 |
| Administrative and management expenses[b] | **51** | 36 | **–** | – |
| Interest on obligations | **823** | 778 | **53** | 54 |
| Actual return on plan assets | **(613)** | (1,708) | **(2)** | (2) |
| Actuarial loss | **1,355** | 1,719 | **34** | 95 |
| Cost before adjustments required to recognize the long-term nature of employee future benefits | **1,897** | 1,052 | **129** | 192 |
| Difference between actual and expected return on assets | **(403)** | 790 | **(1)** | – |
| Difference between actuarial loss on accrued benefit obligations and actuarial loss recognized | **(1,269)** | (1,719) | **(28)** | (92) |
| Amortization of past service cost | **50** | 50 | **–** | – |
| Amortization of transitional (asset) obligation | **(152)** | (152) | **13** | 14 |
| | **(1,774)** | (1,031) | **(16)** | (78) |
| **Cost recognized for the year** | **123** | 21 | **113** | 114 |

a) For the long-term disability salary insurance plan, the current service cost corresponds to the cost of new disability cases for the year.

b) Administrative expenses billed to the Pension Plan by Hydro-Québec amounted to $12 million in 2011 ($12 million in 2010).

## Note 21 Employee Future Benefits (continued)

### SIGNIFICANT ACTUARIAL ASSUMPTIONS

The following actuarial assumptions, used to determine the accrued benefit obligations and cost of the plans, result from a weighted average:

|  | Pension Plan |  | Other plans |  |
|---|---|---|---|---|
| % | **2011** | 2010 | **2011** | 2010 |
| **Accrued benefit obligations** |  |  |  |  |
| Rate at end of year |  |  |  |  |
| Discount rate | **5.01** | 5.54 | **5.01** | 5.54 |
| Salary escalation rate[a] | **2.61** | 2.60 | **–** |  |
| **Accrued benefit cost recognized** |  |  |  |  |
| Rate at end of prior year |  |  |  |  |
| Discount rate | **5.54** | 6.17 | **5.54** | 6.17 |
| Expected long-term rate of return on plan assets | **6.75** | 6.75 | **4.45** | 3.90 |
| Salary escalation rate[a] | **2.60** | 2.97 | **–** |  |

[a] This rate takes salary increases into account as well as promotion opportunities while in service.

As at December 31, 2011, health care costs were based on an annual growth rate of 5.5% for 2012. Subsequently, depending on the assumption used, the rate will ultimately decrease to 4.8% in 2030. A change of 1% in this annual growth rate would have had the following impact for 2011:

|  | 1% increase | 1% decrease |
|---|---|---|
| Impact on current service cost and interest cost on accrued benefit obligations for the year | 8 | (6) |
| Impact on accrued benefit obligations at end of year | 70 | (55) |

## Note 22 Commitments and Contingencies

### ELECTRICITY PURCHASE TRANSACTIONS

On May 12, 1969, Hydro-Québec signed a contract with Churchill Falls (Labrador) Corporation Limited [CF(L)Co] whereby Hydro-Québec undertook to purchase substantially all the output from Churchill Falls generating station, which has a rated capacity of 5,428 MW. Expiring in 2016, this contract will be automatically renewed for a further 25 years under agreed-upon terms and conditions. On June 18, 1999, Hydro-Québec and CF(L)Co entered into a contract to guarantee the availability of 682 MW of additional power until 2041 for the November 1 to March 31 winter period.

As at December 31, 2011, Hydro-Québec was committed under 132 contracts, with terms extending through 2052, to purchase electricity from other power producers. These contracts represent an installed capacity of about 5,644 MW, and the majority of them include renewal clauses. Hydro-Québec has also undertaken to purchase power transmission rights.

Hydro-Québec expects to make the following minimum payments on all its electricity purchase contracts over the coming years:

|  |  |
|---|---|
| 2012 | 908 |
| 2013 | 1,206 |
| 2014 | 1,478 |
| 2015 | 1,672 |
| 2016 | 1,816 |
| 2017 and thereafter | 33,850 |

### GUARANTEES

In accordance with the terms and conditions of certain debt securities issued outside Canada, Hydro-Québec has undertaken to increase the amount of interest paid to non-residents in the event of changes to Canadian tax legislation governing the taxation of non-residents' income. Hydro-Québec cannot estimate the maximum amount it might have to pay under such circumstances. Should an amount become payable, Hydro-Québec has the option of redeeming most of the securities in question. As at December 31, 2011, the amortized cost of these debts was $4,436 million.

Under the contract signed on May 12, 1969, with CF(L)Co, Hydro-Québec could be required to provide additional funding if CF(L)Co were unable to pay its expenses and service its debt. The maximum amount that Hydro-Québec could be required to pay cannot be reasonably evaluated, however, since it is not stated in the contract and since the amount payable would depend on the outcome of future events whose nature and probability cannot be determined. To date, Hydro-Québec has not had to pay any amount under this contract.

### INVESTMENTS

In its *Strategic Plan 2009–2013*, Hydro-Québec anticipates investing approximately $5 billion annually in property, plant and equipment and intangible assets in 2012 and 2013.

In addition, Hydro-Québec has entered into various agreements with the local communities concerned by certain capital projects. The amounts related to some of these agreements are not recorded under Long-term debt because, as at December 31, 2011, they did not correspond to the definition of a liability. These agreements provide for annual payments as of 2021, for a maximum term of 51 years and a total amount of $618 million.

Finally, the Québec government has stated that it would announce its decision concerning the future of Gentilly-2 nuclear generating station in 2012. Should it decide to close down the generating station, abandoning the refurbishment project would have a major financial impact on the costs already capitalized for the work under way (see Note 8, Property, Plant and Equipment) and would require a review of the assumptions related to the work to dismantle the station, as described in Note 13, Asset Retirement Obligations.

### LITIGATION

In the normal course of its development and operating activities, Hydro-Québec is sometimes party to claims and legal proceedings. Management is of the opinion that an adequate provision has been made for these legal actions. Consequently, it does not foresee any adverse effect of such contingent liabilities on Hydro-Québec's consolidated operating results or financial position.

Among other ongoing actions, some local communities have instituted proceedings against the governments of Canada and Québec, as well as against Hydro-Québec, concerning their ancestral rights. Thus, the Innus of Uashat and Mani-Utenam are claiming $1.5 billion. In May 2010, they served notice that they had filed for an injunction to suspend work at the Romaine complex jobsite. Proceedings in this case are currently pending. As well, in November 2006, the Innus of Pessamit reactivated a case instituted in 1998 aimed at obtaining, among other things, the recognition of rights related to Québec lands on which certain hydroelectric generating facilities belonging to the Manic-Outardes complex are located. By amendment, this community attempted to increase its initial claim of $500 million to $10.8 billion and to add annual compensation payments of $667 million from Hydro-Québec. The request for amendment was rejected by Québec's Superior Court and Court of Appeal in 2011. The case concerning the initial amount of $500 million has not yet been settled. Hydro-Québec is challenging the legitimacy of all these claims.

## Note 23 Segmented Information

Hydro-Québec carries on its activities in the four reportable business segments defined below. The non-reportable business segments and other activities are grouped together under Corporate and Other Activities for reporting purposes.

**Generation:** Hydro-Québec Production operates and develops Hydro-Québec's generating facilities. This division also sells electricity on external markets and engages in energy trading. Hydro-Québec Production provides Hydro-Québec Distribution with a base volume of up to 165 TWh of heritage pool electricity annually at an average price of 2.79¢/kWh. In excess of this volume, it can participate in Hydro-Québec Distribution's calls for tenders in a context of free market competition.

**Transmission:** Hydro-Québec TransÉnergie operates and develops Hydro-Québec's power transmission system. It markets system capacity and manages power flows throughout Québec.

**Distribution:** Hydro-Québec Distribution operates and develops Hydro-Québec's distribution system and is responsible for sales and services to Québec customers. It also promotes energy efficiency and ensures the security of the supply of electricity to the Québec market.

**Construction:** Hydro-Québec Équipement et services partagés and Société d'énergie de la Baie James (SEBJ) design, build and refurbish generating and transmission facilities. Hydro-Québec Équipement et services partagés is responsible for projects throughout Québec, except in the territory governed by the *James Bay and Northern Québec Agreement* (JBNQA). SEBJ builds generating facilities in the territory governed by the JBNQA (north of the 49th parallel) and may carry out projects outside Québec.

**Corporate and Other Activities:** The corporate units support the divisions in the achievement of their business objectives. They include the Groupe – Technologie, Groupe – Affaires corporatives et secrétariat général, Vice-présidence – Comptabilité et contrôle, Vice-présidence – Financement, trésorerie et caisse de retraite and Vice-présidence – Ressources humaines, as well as the Direction principale – Centre de services partagés, which reports to Hydro-Québec Équipement et services partagés. The Centre de services partagés brings together internal company-wide shared services, including procurement of goods and services, real estate management, document management, material management and transportation, food and accommodation services.

The amounts presented for each segment are based on the financial information used to prepare the consolidated financial statements. The accounting policies used to calculate these amounts are as described in Note 1, Significant Accounting Policies, and Note 3, Effects of Rate Regulation on the Consolidated Financial Statements.

Intersegment transactions related to electricity sales are recorded based on the supply and transmission rates provided for by the *Act respecting the Régie de l'énergie*. The Act sets a commodity rate for an annual base volume of up to 165 TWh of heritage pool electricity for the Québec market.

Other intersegment products and services are measured at full cost, which includes all costs directly associated with product or service delivery.

Most of Hydro-Québec's revenue is from Québec, and substantially all its property, plant and equipment are related to its Québec operations. In 2011, revenue from outside Québec amounted to $1,536 million, with $1,172 million originating from the United States ($1,643 million and $1,293 million, respectively, in 2010).

## Note 23 Segmented Information (continued)

OPERATIONS AND ASSETS BY SEGMENT

| | | | | | | | 2011 |
|---|---|---|---|---|---|---|---|
| | Generation | Transmission | Distribution | Construction | Corporate and Other Activities | Intersegment eliminations and adjustments | Total |
| Revenue | | | | | | | |
| External customers | 1,555 | 98 | 10,676 | | 60 | 3[a] | **12,392** |
| Intersegment | 4,941 | 2,991 | 75 | 2,122 | 1,385 | (11,514) | **–** |
| Depreciation and amortization | 825 | 963 | 751 | 4 | 83 | (3) | **2,623** |
| Financial expenses | 1,101 | 859 | 511 | – | 30 | (4) | **2,497** |
| Net income | 1,690 | 435 | 374 | – | 109 | 3 | **2,611** |
| Total assets | 31,661 | 18,483 | 12,983 | 398 | 6,343 | (231) | **69,637** |
| Investing activities | | | | | | | |
| Increase in property, plant and equipment and intangible assets | | | | | | | |
| Affecting cash | 1,467 | 1,292 | 950 | 5 | 100 | – | **3,814** |
| Not affecting cash | 208 | 21 | 10 | – | | | **239** |

| | | | | | | | 2010 |
|---|---|---|---|---|---|---|---|
| | Generation | Transmission | Distribution | Construction | Corporate and Other Activities | Intersegment eliminations and adjustments | Total |
| Revenue | | | | | | | |
| External customers | 1,692 | 38 | 10,705 | | 33 | 16[a] | 12,484 |
| Intersegment | 4,843 | 3,051 | 70 | 2,607 | 1,360 | (11,931) | |
| Depreciation and amortization | 725 | 951 | 817 | 3 | 81 | (12) | 2,565 |
| Financial expenses | 1,119 | 872 | 503 | | 35 | (3) | 2,526 |
| Net income (loss) | 1,605 | 447 | 453 | | (2) | 12 | 2,515 |
| Total assets | 30,609 | 18,072 | 12,700 | 449 | 4,307 | (328) | 65,809 |
| Investing activities | | | | | | | |
| Increase in property, plant and equipment and intangible assets | | | | | | | |
| Affecting cash | 1,900 | 1,248 | 944 | 7 | 121 | | 4,220 |
| Not affecting cash | 89 | 17 | 9 | – | | – | 115 |

a) Resales of excess supply by Hydro-Québec Distribution on outside markets are presented as offsets of electricity purchases rather than in Revenue.

## Note 24 Comparative Information

Some of the prior year's data have been reclassified to conform to the presentation adopted in the current year.

# FIVE-YEAR REVIEW

## CONSOLIDATED FINANCIAL INFORMATION

| $M | 2011 | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|
| **OPERATIONS** | | | | | |
| **Revenue** | **12,392** | 12,484 | 12,217 | 12,646 | 12,442 |
| **Expenditure** | | | | | |
| Operations | **2,571** | 2,579 | 2,527 | 2,502 | 2,556 |
| Electricity and fuel purchases | **1,224** | 1,390 | 1,207 | 1,406 | 1,555 |
| Depreciation and amortization | **2,623** | 2,565 | 2,286 | 2,316 | 2,228 |
| Taxes | **866** | 909 | 928 | 1,093 | 820 |
| | **7,284** | 7,443 | 6,948 | 7,317 | 7,159 |
| **Operating income** | **5,108** | 5,041 | 5,269 | 5,329 | 5,283 |
| Financial expenses | **2,497** | 2,526 | 2,398 | 2,443 | 2,510 |
| Income from continuing operations | **2,611** | 2,515 | 2,871 | 2,886 | 2,773 |
| Income from discontinued operations | **–** | | | 129 | 25 |
| **Net income** | **2,611** | 2,515 | 2,871 | 3,015 | 2,798 |
| **DIVIDEND** | **1,958** | 1,886 | 2,168 | 2,252 | 2,095 |
| **BALANCE SHEET SUMMARY** | | | | | |
| Total assets | **69,637** | 65,809 | 64,918 | 62,850 | 61,167 |
| Long-term debt, including current portion and perpetual debt | **42,050** | 38,660 | 37,943 | 36,415 | 34,534 |
| Equity | **18,834** | 18,566 | 18,419 | 18,250 | 17,206 |
| **INVESTMENTS FOR CONTINUING OPERATIONS AFFECTING CASH** | | | | | |
| Property, plant and equipment and intangible assets[a] | **3,814** | 4,220 | 4,307 | 3,954 | 3,590 |
| **FINANCIAL RATIOS** | | | | | |
| Interest coverage[b] | **1.99** | 1.92 | 2.11 | 2.07 | 2.09 |
| Return on equity (%)[c] | **14.0** | 14.0 | 16.5 | 18.1 | 17.8 |
| Profit margin from continuing operations (%)[d] | **21.1** | 20.1 | 23.5 | 22.8 | 22.3 |
| Capitalization (%)[e] | **31.0** | 32.1 | 32.6 | 33.4 | 33.1 |
| Self-financing (%)[f] | **47.6** | 46.8 | 41.3 | 45.7 | 63.7 |

a) Including the Energy Efficiency Plan.

b) Sum of operating income and net investment income divided by gross interest expense.

c) Net income divided by average equity less average accumulated other comprehensive income.

d) Income from continuing operations divided by revenue.

e) Equity divided by the sum of equity, long-term debt (including current portion), perpetual debt, borrowings and derivative instrument liabilities, less derivative instrument assets.

f) Cash flows from operating activities less dividend paid, divided by the sum of cash flows from investing activities, excluding net disposal (acquisition) of short-term investments, and repayment of long-term debt and sinking fund.

Note: Throughout the Financial Review and the Consolidated Results by Quarter, certain comparative figures have been reclassified to conform to the presentation adopted in the current year.

## OPERATING STATISTICS

| | 2011 | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|
| GWh | | | | | |
| **Electricity sales** | | | | | |
| In Québec, by category | | | | | |
| Residential and farm | **62,748** | 59,534 | 62,484 | 60,747 | 60,046 |
| Commercial and institutional | **33,569** | 33,865 | 34,151 | 35,228 | 34,751 |
| Industrial | **67,621** | 68,439 | 63,310 | 69,144 | 73,005 |
| Other | **6,028** | 7,647 | 5,371 | 5,278 | 5,353 |
| | **169,966** | 169,485 | 165,316 | 170,397 | 173,155 |
| Outside Québec | | | | | |
| Canada/U.S. (long-term) | **2,617** | 2,677 | 2,604 | 2,516 | 2,384 |
| Canada/U.S. (short-term) | **24,146** | 20,593 | 20,753 | 18,783 | 17,240 |
| | **26,763** | 23,270 | 23,357 | 21,299 | 19,624 |
| Total electricity sales | **196,729** | 192,755 | 188,673 | 191,696 | 192,779 |
| $M | | | | | |
| **Revenue from electricity sales** | | | | | |
| In Québec, by category | | | | | |
| Residential and farm | **4,536** | 4,302 | 4,500 | 4,300 | 4,144 |
| Commercial and institutional | **2,599** | 2,648 | 2,662 | 2,687 | 2,602 |
| Industrial | **3,262** | 3,185 | 3,092 | 3,174 | 3,336 |
| Other | **323** | 371 | 295 | 284 | 286 |
| | **10,720** | 10,506 | 10,549 | 10,445 | 10,368 |
| Outside Québec | | | | | |
| Canada/U.S. (long-term) | **254** | 247 | 256 | 220 | 225 |
| Canada/U.S. (short-term) | **1,145** | 1,266 | 1,250 | 1,699 | 1,392 |
| | **1,399** | 1,513 | 1,506 | 1,919 | 1,617 |
| Total revenue from electricity sales | **12,119** | 12,019 | 12,055 | 12,364 | 11,985 |
| As at December 31 | | | | | |
| **Number of customer accounts** | | | | | |
| In Québec, by category | | | | | |
| Residential and farm | **3,746,397** | 3,698,169 | 3,649,470 | 3,603,330 | 3,554,443 |
| Commercial and institutional | **291,212** | 300,163 | 297,380 | 296,504 | 299,524 |
| Industrial | **18,573** | 9,589 | 9,829 | 10,111 | 11,565 |
| Other | **4,013** | 3,868 | 3,653 | 3,499 | 3,440 |
| Total customer accounts | **4,060,195** | 4,011,789 | 3,960,332 | 3,913,444 | 3,868,972 |
| kWh/customer account | | | | | |
| **Average annual consumption** | | | | | |
| In Québec, by category | | | | | |
| Residential and farm | **16,857** | 16,205 | 17,230 | 16,974 | 17,019 |
| Commercial and institutional | **113,529** | 113,347 | 115,009 | 118,209 | 116,782 |
| Industrial | **4,802,287** | 7,049,027 | 6,350,050 | 6,379,775 | 6,187,651 |
| Other | **1,529,755** | 2,033,506 | 1,501,957 | 1,521,257 | 1,162,811 |

| | **2011** | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|
| MW | | | | | |
| **Installed capacity**[a] | | | | | |
| Hydroelectric | **35,285** | 34,490 | 34,499 | 34,118 | 33,305 |
| Nuclear | **675** | 675 | 675 | 675 | 675 |
| Thermal | **1,011** | 1,506 | 1,637 | 1,637 | 1,672 |
| Wind farm | **–** | – | 2 | 2 | 2 |
| Total installed capacity | **36,971** | 36,671 | 36,813 | 36,432 | 35,654 |
| GWh | | | | | |
| **Total energy requirements**[b] | **214,764** | 209,108 | 208,524 | 211,228 | 209,818 |
| MW | | | | | |
| **Peak power demand in Québec**[c] | **35,481** | 37,717 | 34,659 | 37,230 | 35,352 |
| km | | | | | |
| **Lines (overhead and underground)** | | | | | |
| Transmission | **33,630** | 33,453 | 33,244 | 33,058 | 33,008 |
| Distribution[d] | **113,525** | 112,089 | 111,205 | 110,127 | 109,618 |
| | **147,155** | 145,542 | 144,449 | 143,185 | 142,626 |

a) In addition to the generating capacity of its own facilities, Hydro-Québec has access to almost all the output from Churchill Falls generating station (5,428 MW) under a contract with Churchill Falls (Labrador) Corporation Limited that will remain in effect until 2041. It also purchases all the output from 12 wind farms (919 MW) and 3 small hydropower plants (23 MW) operated by independent power producers. Moreover, 1,215 MW are available under long-term contracts with other suppliers.

b) Total energy requirements consist of kilowatthours delivered within Québec and to neighboring systems.

c) Total power demand at the annual domestic peak for the winter beginning in December, including interruptible power. The 2011–2012 winter peak occurred at 8:00 a.m. on January 16, 2012.

d) These figures include off-grid systems but exclude private systems, lines under construction and 44-kV lines (transmission).

## OTHER INFORMATION

| | **2011** | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|
| % | | | | | |
| **Rate (decrease) increase** | | | | | |
| Average (decrease) increase from January 1 to December 31 | **(0.2)** | 0.6 | 1.6 | 2.7 | 2.8 |
| As at December 31 | | | | | |
| **Number of employees**[a] | | | | | |
| Permanent | **19,415** | 19,521 | 19,536 | 19,297 | 19,459 |
| Temporary | **3,086** | 3,571 | 3,554 | 3,619 | 3,610 |
| Total | **22,501** | 23,092 | 23,090 | 22,916 | 23,069 |
| Women (%) | **31.1** | 30.9 | 30.6 | 30.9 | 31.3 |

a) Excludes employees of subsidiaries and joint ventures.

# CONSOLIDATED RESULTS BY QUARTER

| | | | | | **2011** |
|---|---|---|---|---|---|
| | 1st quarter | 2nd quarter | 3rd quarter | 4th quarter | 12-month period |
| $M | | | | (unaudited) | (audited) |
| **Revenue** | 3,818 | 2,809 | 2,645 | 3,120 | **12,392** |
| **Expenditure** | | | | | |
| Operations | 599 | 618 | 572 | 782 | **2,571** |
| Electricity and fuel purchases | 339 | 297 | 281 | 307 | **1,224** |
| Depreciation and amortization | 605 | 623 | 598 | 797 | **2,623** |
| Taxes | 253 | 202 | 202 | 209 | **866** |
| | 1,796 | 1,740 | 1,653 | 2,095 | **7,284** |
| **Operating income** | 2,022 | 1,069 | 992 | 1,025 | **5,108** |
| Financial expenses | 620 | 617 | 609 | 651 | **2,497** |
| **Net income** | 1,402 | 452 | 383 | 374 | **2,611** |

| | | | | | 2010 |
|---|---|---|---|---|---|
| | 1st quarter | 2nd quarter | 3rd quarter | 4th quarter | 12-month period |
| $M | | | | (unaudited) | (audited) |
| **Revenue** | 3,920 | 2,686 | 2,695 | 3,183 | 12,484 |
| **Expenditure** | | | | | |
| Operations | 631 | 633 | 594 | 721 | 2,579 |
| Electricity and fuel purchases | 333 | 255 | 370 | 432 | 1,390 |
| Depreciation and amortization | 607 | 619 | 646 | 693 | 2,565 |
| Taxes | 272 | 216 | 201 | 220 | 909 |
| | 1,843 | 1,723 | 1,811 | 2,066 | 7,443 |
| **Operating income** | 2,077 | 963 | 884 | 1,117 | 5,041 |
| Financial expenses | 638 | 587 | 657 | 644 | 2,526 |
| **Net income** | 1,439 | 376 | 227 | 473 | 2,515 |

# CORPORATE MANAGEMENT

**Thierry Vandal**
President and Chief Executive Officer

**Marie-José Nadeau**
Executive Vice President –
Corporate Affairs and Secretary General

**Élie Saheb**
Executive Vice President –
Technology

**Jean-Hugues Lafleur**
Vice President –
Financing, Treasury and Pension Fund

**Lise Croteau**
Vice President –
Accounting and Control

**Bruno Gingras**
Vice President –
Human Resources

# BOARD OF DIRECTORS

| | |
|---|---|
| **Michael L. Turcotte**<br>Chairman of the Board, Hydro-Québec<br>*Appointment: November 17, 2005*<br>*Term: November 30, 2016*<br>*Status: Independent director* | Michael L. Turcotte holds a Bachelor of Arts degree from the University of Montréal and a Master's degree from Laval University School of Business. He enjoyed a lengthy career with the Royal Bank of Canada where he held various senior positions. He was Chairman of the Board of Management of the Canada Customs and Revenue Agency from 1999 to 2004. He has also served on the boards of various organizations in the private and public sectors. |
| **Thierry Vandal**<br>President and Chief Executive Officer, Hydro-Québec<br>*Appointment: April 6, 2005*<br>*Term: October 3, 2012*<br>*Status: Non-independent director* | With a Bachelor of Engineering from the École Polytechnique de Montréal and an MBA from HEC Montréal, Thierry Vandal has worked in the energy sector for almost 30 years. In particular, he participated in the operations, marketing and strategic planning aspects of the petroleum, petrochemical and natural gas industries before joining Hydro-Québec in 1996. Mr. Vandal sits on the boards of The Conference Board of Canada, HEC Montréal and McGill University. |
| **Robert Sauvé**<br>Deputy Minister of Natural Resources and Wildlife, Gouvernement du Québec<br>*Appointment: November 4, 2009*<br>*Term: November 4, 2013*<br>*Status: Non-independent director* | With a Bachelor's degree in Architecture from the Université de Montréal and a Master's degree in Urban and Regional Planning from Oxford Polytechnic in England, Robert Sauvé also studied planning and regional development at the doctoral level at the Université de Montréal. Mr. Sauvé joined the Québec public service in 1987 and held many executive positions in various departments. After serving as Associate Secretary General for Aboriginal Affairs and Deputy Minister of Regions, he became Associate Deputy Minister of Regional and Municipal Affairs before his appointment as Deputy Minister of Natural Resources and Wildlife in June 2009. |
| **Gaston Blackburn**<br>President, G. Blackburn Inc.<br>*Appointment: September 10, 2003*<br>*Term: February 11, 2012*[a]<br>*Status: Independent director* | A merchant and businessman, Gaston Blackburn was elected MNA for Roberval in 1988. He was successively Parliamentary Secretary to the Premier, Minister for the Environment and Minister of Recreation, Fish and Game. A member of the Ordre des administrateurs agréés du Québec and with certification from the Collège des administrateurs de sociétés, he has served on the boards of companies in various sectors, including the food industry and natural resources. He currently sits on the board of the Institut des régions ressources. |
| **Anik Brochu**<br>Director, Human Resources<br>Groupe T.A.P. inc.<br>*Appointment: September 13, 2006*<br>*Term: November 30, 2015*<br>*Status: Independent director* | A graduate of the University of Ottawa in Law and member of the Barreau du Québec, Anik Brochu was General Manager of the Chambre de commerce de Val-d'Or from 1997 to 2008 and a lawyer with Cain Lamarre Casgrain Wells from 2008 to 2010. She continues to provide consulting services to that firm. In 2011, she joined Groupe T.A.P. as Director of Human Resources. Ms. Brochu sits on the board of the Université du Québec en Abitibi-Témiscamingue and on various committees that are active in the field of socioeconomic development. |
| **Carl Cassista**<br>President, Axion Technologies Ltd.<br>*Appointment: September 26, 2007*<br>*Term: November 30, 2014*<br>*Status: Independent director* | A graduate of Université Laval and member of the Ordre des ingénieurs du Québec, Carl Cassista has worked in electrical engineering and in R&D, mainly for the Axion Technologies group. He joined that company in 1982 and has served there as President since 1994. |
| **Michelle Cormier**<br>Vice-President and Chief Financial Officer, TNG Corporation<br>*Appointment: November 4, 2009*<br>*Term: November 4, 2013*<br>*Status: Independent director* | With a Bachelor's degree in Administration from Bishop's University and a Graduate Diploma in Public Accountancy from McGill University, Michelle Cormier is a member of the Ordre des comptables agréés du Québec and has certification from the Institute of Corporate Directors. She held executive positions with Alcan Aluminium and Repap Enterprises before her appointment as Vice-President and Chief Financial Officer of TNG Corporation in 2001. Ms. Cormier chairs the boards of Société immobilière du Québec, Pro-Fab and the Orchestre Métropolitain and sits on the board of Calyx Transportation Group. |

a) When their term expires, directors remain in office until replaced or reappointed.

**Suzanne Gouin**
President and Chief Executive Officer,
TV5 Québec Canada
*Appointment: September 26, 2007*
*Term: November 30, 2015*
*Status: Independent director*

Suzanne Gouin has a Bachelor's degree in Political Science from Concordia University, where she also took graduate courses in media studies. She completed an MBA at the University of Western Ontario and has certification from the Institute of Corporate Directors. She has held several management positions in media companies and joined TV5 Québec Canada in 2002 as President and Chief Executive Officer. Ms. Gouin sits on the boards of Concordia University and various not-for-profit organizations.

**Isabelle Hudon**
President, Sun Life Financial, Québec
*Appointment: November 30, 2011*
*Term: November 30, 2015*
*Status: Independent director*

Following her studies in economics and business administration, Isabelle Hudon began her career in communications before her appointment as President and Chief Executive Officer of the Board of Trade of Metropolitan Montreal, a position she held from 2004 to 2008. From 2008 to 2010, she was President of Marketel/McCann-Ericson. In 2010, she joined Sun Life Financial as President of the company's Québec operations. Among other duties, Ms. Hudon chairs the board of directors of the Université du Québec à Montréal and sits on the board of Aéroports de Montréal.

**Louis Lagassé**
Chairman of the Board, Lagassé Group
*Appointment: September 10, 2003*
*Term: February 11, 2012*[a]
*Status: Independent director*

With a law degree from the Université de Montréal, an MBA from the University of Western Ontario and a Ph.D. in Civil Law from Bishop's University, Louis Lagassé is a member of the Chambre des notaires du Québec. He also holds an honorary doctorate from the Université de Sherbrooke and is a member of the Order of Canada. Mr. Lagassé heads an industrial group that is active on the Canadian and European markets, and he serves on the boards of several telecommunications companies as well as various not-for-profit organizations.

**Jacques Leblanc**
President, Gestion Jacques Leblanc inc.
*Appointment: April 7, 2004*
*Term: November 30, 2014*
*Status: Independent director*

A graduate of Université Laval in administration, Jacques Leblanc is a chartered accountant and a Fellow of the Ordre des comptables agréés du Québec. He also has certification from the Collège des administrateurs de sociétés. Mr. Leblanc was a partner in the firm Leblanc Bourque Arsenault for 25 years. Currently, he sits on the board of the Canada Employment Insurance Financing Board.

**Michel Plessis-Bélair**
Vice-Chairman, Power Corporation of Canada
*Appointment: April 7, 2004*
*Term: September 26, 2011*[a]
*Status: Independent director*

Michel Plessis-Bélair holds a Bachelor of Arts from the Université de Montréal, a business and accounting degree from HEC Montréal and an MBA from Columbia University in New York. In 1986, he joined Power Corporation of Canada. From 1986 to 2008, he successively served as Senior Vice-President, Finance and Administration, as Executive Vice-President and Chief Financial Officer and as Vice-Chairman and Chief Financial Officer. Currently, he is Vice-Chairman of Power Corporation and a director of several of its subsidiaries. He also sits on the boards of various not-for-profit organizations.

**Marie-France Poulin**
Executive Vice President, Camada Group Inc.
*Appointment: April 7, 2004*
*Term: November 30, 2015*
*Status: Independent director*

Marie-France Poulin holds a Bachelor of Business Administration with an option in Marketing from Université Laval, as well as certification from the Collège des administrateurs de sociétés. Prior to joining Camada Group in 2004, she held several executive positions, including that of Vice President, Sales and Marketing, of MAAX. Ms. Poulin is a director of the Laurentian Bank and also sits on the boards of various not-for-profit organizations.

**Martine Rioux**
Corporate Secretary, Université du Québec
en Abitibi-Témiscamingue
*Appointment: November 30, 2011*
*Term: November 30, 2014*
*Status: Independent director*

Martine Rioux holds a Bachelor of Arts in Psychology from the Université de Sherbrooke and a Certificate in Administration from the Université du Québec en Abitibi-Témiscamingue. She worked as a development officer before becoming General Manager of the Conférence régionale des élus de l'Abitibi-Témiscamingue. In 2011, she was appointed Corporate Secretary of the Université du Québec en Abitibi-Témiscamingue.

**Marie-Anne Tawil**
President and Chief Executive Officer,
Iron Hill Investments Inc.
*Appointment: December 7, 2005*
*Term: November 30, 2015*
*Status: Independent director*

With a Licentiate in Civil Law and a Bachelor of Common Law from the University of Ottawa and an MBA from Concordia University, Marie-Anne Tawil has earned certification from the Institute of Corporate Directors and is a member of the Barreau du Québec. She has practised law with two major law firms in Montréal and was Legal Counsel and Secretary of Quebecor. She has been President of Maxi-Crisp Canada since 1998 and President and Chief Executive Officer of Les Investissements Iron Hill since 2000. Ms. Tawil is Chair of the Société de l'assurance automobile du Québec.

**Emmanuel Triassi**
President, Groupe T.E.Q. Inc.
*Appointment: September 26, 2007*
*Term: November 30, 2015*
*Status: Independent director*

A member of the Ordre des ingénieurs du Québec, Emmanuel Triassi holds a Bachelor's degree from McGill University and a Master's degree in Building Engineering from Concordia University. He also has certification from the Collège des administrateurs de sociétés. He is the founding president of a general contracting company specializing in construction project management.

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a) When their term expires, directors remain in office until replaced or reappointed.

# ACTIVITY REPORT OF THE BOARD OF DIRECTORS AND BOARD COMMITTEES

▲ In the lobby of Hydro-Québec's head office in Montréal, a display of archival photos and heritage artifacts highlights the centenary of Shawinigan-2 generating station.

► *Soleil différé*, a high-definition video by Pascal Grandmaison.

## BOARD OF DIRECTORS

Hydro-Québec's Board of Directors is made up of 16 members, including the Chairman of the Board and the President and Chief Executive Officer. The directors' diverse professional backgrounds are a definite asset for the seven Board committees: Executive, Governance and Ethics, Audit, Human Resources, Environment and Public Affairs, Finance, and Pension Plan Financial Management. The Board is chaired by Michael Turcotte.

**Mandate:** The Board administers the company's business efficiently, in accordance with the *Hydro-Québec Act*, the *Companies Act* and the applicable regulations. Its principal functions include reviewing and approving the Strategic Plan and the annual Business Plan, setting the company's annual performance targets, reviewing financial results on a monthly basis, and performing the cyclical review of integrated business risk management. The Board also approves the appointment of executives other than the President and Chief Executive Officer, as well as the policies governing compensation and working conditions for Hydro-Québec's employees and executives. In addition, it approves the company's major capital projects in generation, transmission and distribution, as well as important matters submitted to the Régie de l'énergie.

**Activities:** The Board met 11 times in 2011, while its committees held 31 meetings in all. The Board approved many capital projects in generation, transmission and distribution, including the rollout of an advanced metering infrastructure and a project to integrate the output from the future Romaine complex into the main transmission grid. Presentations were made to the directors on such topics as the U.S. retail electricity market, major transmission projects and issues related to electricity exports.

In the course of its recurring deliberations, the Board examined the company's objectives and approved its quarterly and annual financial results, as well as the financial statements of the Hydro-Québec pension plan. It reviewed the progress of the company's main capital projects and examined the consolidated residual risk portfolio. The Board also approved the annual internal audit plan and the independent auditors' plan and fees in connection with the audit of the financial statements of the company and of its pension plan. In addition, it reviewed the mandates of the Board committees.

### EXECUTIVE (A)

**Mandate:** The Executive Committee is vested with all of the powers of the Board of Directors, except those powers that are expressly reserved for the Board by law and under the company's bylaws. It is chaired by Michael Turcotte.

**Activities:** The Executive Committee did not hold any meetings in 2011.

### GOVERNANCE AND ETHICS (B)

**Mandate:** The role of the Governance and Ethics Committee is to develop the rules of governance and codes of ethics applicable to directors, senior executives appointed by the company and employees of Hydro-Québec and its wholly owned subsidiaries; the expertise and experience profiles of the Board members; the criteria for assessing the performance of directors and the Board's functioning; the induction and training program for directors; and the measures for evaluating the company's efficiency and performance. This committee also makes recommendations to the Board regarding the company's policies and Strategic Plan and the composition and mandate of the Board committees. The Governance and Ethics Committee is chaired by Michael Turcotte.

## DIRECTOR ATTENDANCE AT MEETINGS OF THE BOARD OF DIRECTORS AND BOARD COMMITEES IN 2011

| | | | Board[1] | A[2] | B | C | D[1] | E | F | G |
|---|---|---|---|---|---|---|---|---|---|---|
| **Directors** | Notes | **Number of meetings** | **11** | | **3** | **6** | **6** | **9** | **4** | **3** |
| **Michael L. Turcotte** A B C D E F G | | | 11 | | 3 | 6 | 6 | 9 | 4 | 3 |
| **Thierry Vandal** A E F G | 3 | | 11 | | 3 | 6 | 6 | 7 | 4 | 3 |
| **Robert Sauvé** | | | 10 | | | | | | | |
| **Gaston Blackburn** E | | | 10 | | | | | 8 | | |
| **Anik Brochu** E | | | 10 | | | | | 8 | | |
| **Carl Cassista** D | | | 11 | | | | 6 | | | |
| **Michelle Cormier** | | | 11 | | | | | | | |
| **Suzanne Gouin** D E | | | 7 | | | | 5 | 7 | | |
| **Isabelle Hudon** | 4 | | 1 | | | | | | | |
| **Louis Lagassé** A F G | | | 8 | | | | | | 4 | 3 |
| **Jacques Leblanc** B C | 5 | | 11 | | 3 | 6 | | 1 | 1 | 2 |
| **Michel Plessis-Bélair** A B F G | | | 8 | | 2 | | | | 3 | 2 |
| **Marie-France Poulin** A B D | | | 11 | | 3 | | 6 | | | |
| **Martine Rioux** | 4 | | 0 | | | | | | | |
| **Marie-Anne Tawil** B C | | | 10 | | 3 | 5 | | | | |
| **Emmanuel Triassi** C F | | | 11 | | | 6 | | | 4 | |

| | | Board[1] | A[2] | B | C | D[1] | E | F | G |
|---|---|---|---|---|---|---|---|---|---|
| **Outgoing Directors** | **Number of meetings** | **10** | | **3** | **5** | **5** | **8** | **3** | **2** |
| **Bernard Gaudreault** C (end of mandate: November 30, 2011) | | 9 | | | 5 | | | | |
| **Gilles Vaillancourt** G (end of mandate: November 30, 2011) | | 0 | | | | | | | 0 |

**Board Committees**

| | |
|---|---|
| A | Executive |
| B | Governance and Ethics |
| C | Audit |
| D | Human Resources |
| E | Environment and Public Affairs |
| F | Finance |
| G | Pension Plan Financial Management |

1) Including one conference call of the Board of Directors and one of the Human Resources Committee.

2) The Executive Committee meets when necessary. It did not hold any meetings in 2011.

3) Thierry Vandal attends meetings of the Governance and Ethics, Audit and Human Resources committees as a guest.

4) Isabelle Hudon and Martine Rioux were appointed to the Board of Directors effective November 30, 2011.

5) Jacques Leblanc participated as a substitute member in the meeting of the Environment and Public Affairs Committee held on March 11, 2011, the Finance Committee meeting held on March 9, 2011, and the Pension Plan Financial Management Committee meetings held on March 9 and December 13, 2011.

**Activities:** In 2011, the Governance and Ethics Committee met three times. While carefully ensuring application of the governance measures in the *Hydro-Québec Act*, the Committee assessed the impact of the Québec *Business Corporations Act*, which came into effect in 2011 and applies to a number of Hydro-Québec subsidiaries. It reviewed the mandates of the Board committees and examined the annual reviews of several company policies. In addition, the Committee examined the *Annual Report 2010* and ensured that its content complied with the governance requirements of the *Hydro-Québec Act* with regard to accountability.

## AUDIT (C)

**Mandate:** The Audit Committee's role is to make recommendations to the Board of Directors on the approval of the financial statements of Hydro-Québec and its pension plan. It ensures that the financial statements accurately reflect the financial positions and changes therein, and that accounting practices and internal controls are adequate and effective. It issues an opinion prior to the Board's approval of the annual audit plan, audit mission letters and independent auditors' fees. The Committee oversees the planning of internal audit activities, ensures that the company has a plan to optimize the use of its resources and monitors this plan. Furthermore, it examines the integrated business risk management process. It is responsible for reviewing the relevance of its mandate on an annual basis. It can also act as the audit committee of any of the company's wholly owned subsidiaries. The Audit Committee is composed solely of independent directors who have the necessary expertise for the performance of its mandate. It is chaired by Jacques Leblanc.

**Activities:** The Audit Committee held six meetings in 2011. As part of its recurring deliberations, it examined the quarterly and annual financial statements of Hydro-Québec and its pension plan and the annual financial statements of Société d'énergie de la Baie James. It monitored the independence of the independent auditors and met with them in order to plan the audit and receive its results. The Committee recommended that the Board approve the audit plans for the company and its pension plan. It also examined the internal and external audit results and reports regarding control and optimization of the company's operations and resources as well as management of the related risks. The Committee also monitored Hydro-Québec's migration to the International Financial Reporting Standards. In addition, it examined the Internal Audit Plan – 2012–2014 Horizon and the company's 2012 internal audit plan and recommended their approval by the Board.

## HUMAN RESOURCES (D)

**Mandate:** The Human Resources Committee is responsible for establishing human resources policies as well as standards and rate scales applicable to the compensation of senior executives and employees of the company and its wholly owned subsidiaries. It is also responsible for developing the expertise and experience profile to be used in selecting the President and Chief Executive Officer and for proposing a candidate for that position to the Board of Directors, which will then make a recommendation to the Québec government. In addition, it develops and suggests criteria for assessing the performance of the President and Chief Executive Officer and makes recommendations to the Board regarding his compensation. It also participates in selecting the senior executives of the company and its subsidiaries and in developing a succession plan. The Committee is chaired by Marie-France Poulin.

**Activities:** In 2011, the Human Resources Committee held six meetings, including a joint meeting with the Finance Committee to examine Hydro-Québec's Business Plan, objectives and corporate risk management. It evaluated whether or not the company had met its annual performance objectives. The Committee also examined the overall compensation of Hydro-Québec's employees, executives and President and Chief Executive Officer and of the employees and executives of its wholly owned subsidiaries, and recommended approval by the Board. In addition, it closely monitored the business risks related to human resources, succession management within the company and, more specifically, the Senior Management succession plan. It also studied the *Report of Activities of the Corporate Ombudsman 2010* and examined the annual report on the application of the corporate policy Our Human Resources.

## ENVIRONMENT AND PUBLIC AFFAIRS (E)

**Mandate:** The role of the Environment and Public Affairs Committee is to provide opinions and make recommendations to the Board of Directors on environmental management and compliance; integration of sustainable development principles; public health and safety; community relations; the company's social responsibility and its contribution to the community; and its public image. It also receives environmental incident reports and related claims, opinions, investigations and legal proceedings. The Committee is chaired by Gaston Blackburn.

**Activities:** The Environment and Public Affairs Committee met nine times in 2011. It studied the results of the President and Chief Executive Officer's annual environmental management review as well as the semiannual reports on environmental compliance and legislation. It also reviewed the *Sustainability Report 2010* and recommended its publication. Moreover, the Committee recommended that the Board approve the granting of donations and sponsorships according to the criteria and rules in effect. As well, it examined the *Annual Report 2010* of the Fondation Hydro-Québec pour l'environnement and the 2010 results with respect to the company's communication and public relations activities, financing of university research chairs and the Fonds Hydro-Québec pour la Francophonie. Furthermore, it reviewed the regional profile of Hydro-Québec's activities for 2010 and the annual activity reports of the liaison committees established by the company with groups representing Québec agricultural producers and municipalities.

## FINANCE (F)

**Mandate:** The role of the Finance Committee is to advise the Board on Hydro-Québec's directions, policies, strategies and overall objectives related to financing, borrowings, insurance, banking and risk management; on major investment projects outside Québec; and on important matters related to technology marketing. In addition, every year, it examines the company's consolidated portfolio of residual business risks. The Committee is chaired by Michel Plessis-Bélair.

**Activities:** The Finance Committee held four meetings in 2011, including a joint meeting with the Human Resources Committee for the purpose of analyzing the company's Business Plan, objectives and corporate risk management. It also examined various annual programs before recommending their approval by the Board, including borrowings, guarantees, financial risk management, swaps, sinking fund management, derivatives and underlying instruments, counterparty management for energy trades performed by Hydro-Québec Production on wholesale markets and credit limits for each counterparty with regard to cash, Hydro-Québec TransÉnergie and Hydro-Québec Distribution. Moreover, the Committee reviewed financial tracking reports on capital projects worth more than $50 million and the annual report on the application of the corporate policy Our Assets.

## PENSION PLAN FINANCIAL MANAGEMENT (G)

**Mandate:** The role of the Pension Plan Financial Management Committee is to advise the Board on the directions, policies, strategies and overall objectives established by Hydro-Québec for its pension plan: the Pension Plan Funding Policy, the Pension Fund Investment Management Policy, actuarial valuations of the plan, choice of the benchmark portfolio, the plan's financial position and plan expenses. It also expresses its opinion on any other aspect of pension fund management. The Committee is chaired by Louis Lagassé.

**Activities:** In 2011, the Pension Plan Financial Management Committee met three times. It examined the annual actuarial valuation for purposes of pension plan funding and solvency, and recommended its approval by the Board. The Committee also recommended that the Board approve amendments to the Pension Fund Investment Management Policy, the creation of corporations for the pension fund's property investments, the annual pension fund management and pension plan administration budgets, and the reappointment of the actuary for the next annual valuation. The Committee reviewed the long-term asset mix and the pension fund management structure. Furthermore, it evaluated the performance of the pension fund portfolio and specialized portfolio managers. Lastly, it closely monitored changes in the pension plan's financial position.

# GOVERNANCE

1

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Hydro-Québec's Board of Directors complies with the requirements of the *Hydro-Québec Act* with regard to governance. It also follows the guidelines of the Canadian Securities Administrators applicable to state-owned enterprises, even though it is not legally bound to do so because Hydro-Québec is not publicly traded.

## INDEPENDENCE

A total of 14 of the 16 directors of Hydro-Québec, including the Chairman of the Board, are independent directors, i.e., they have no direct or indirect relationships or interests, for example of a financial, commercial, professional or philanthropic nature, that could interfere with the quality of their decisions as regards the interests of the company. The two Board members who are not independent are Thierry Vandal, the company's President and Chief Executive Officer, and Robert Sauvé, Deputy Minister of Natural Resources and Wildlife.

The Québec government appoints the members of the Board based on the expertise and experience profiles established by the company. Directors are appointed for a term of up to four years and the Chairman for a term of up to five years; they may be reappointed twice, successively or not.

## RULES OF ETHICS

The Board is responsible for compliance with the rules set out in the *Code of Ethics and Rules of Professional Conduct for Directors, Executives and Controllers of Hydro-Québec*, which are based on the *Regulation respecting the ethics and professional conduct of public office holders*.

## COMPENSATION AND OTHER BENEFITS PAID TO DIRECTORS

Compensation for all independent directors, except the Chairman, is set out in Order-in-Council No. 610-2006. Compensation consists of a basic annual retainer of $17,192 plus a meeting fee of $806 for each Board or committee meeting. A yearly supplement of $5,373 is paid to the chairs of the Board committees. Pursuant to Order-in-Council No. 1099-2005, the Chairman of the Board receives annual compensation of $125,000. Board members are also entitled to reimbursement of travel expenses incurred in the performance of their duties.

## DIRECTOR INDUCTION AND TRAINING PROGRAM

When Board members are first appointed, they receive training on their roles and responsibilities as well as the nature and business context of Hydro-Québec's principal activities. Board members are informed about the company's legal and regulatory context, with particular emphasis on the governance of a government-owned utility. In addition, Board committee members receive documents regarding the mandate of their committee and the matters it handles. The director induction and training program also includes presentations on major issues and projects, as well as tours of the company's facilities. In 2011, Board members visited the Eastmain-1-A and Sarcelle powerhouse jobsites. As well, to complement their knowledge, some directors took advantage of training programs offered by educational institutions.

## DEINTEGRATION

In 1997, Hydro-Québec implemented an organizational structure that allows some units to work independently from each other while remaining part of the same company. This is the principle of deintegration, or unbundling.

The operations of these units are subject to set rules of conduct and ethics. The

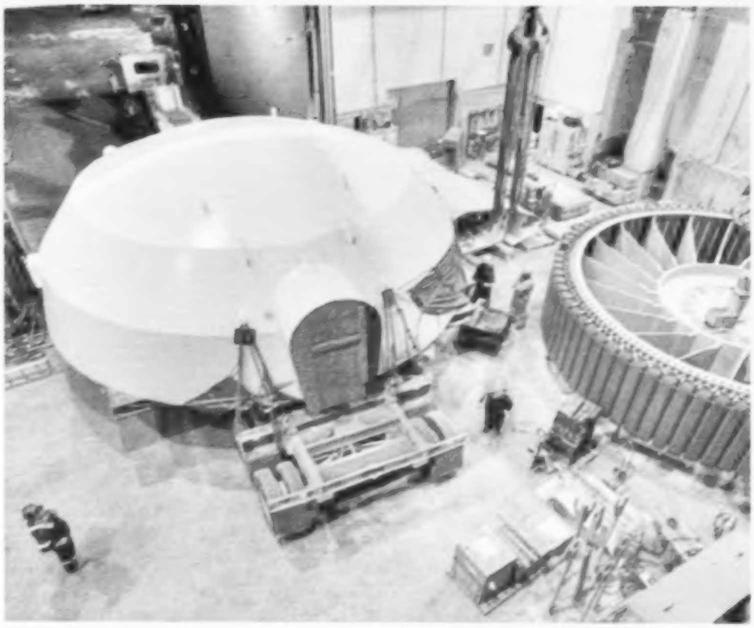
**1.** Grinding operation in the draft tube cone of a turbine runner at Eastmain-1-A powerhouse.

**2.** At the Romaine-2 dam site, supervisors Bernard Poirier and Bruno Michaud and their team coordinator Daniel Flamand ensure that the work performed complies with plans and specifications.

**3.** Members of the Board visit the Sarcelle powerhouse jobsite.

**4.** A hub cover arrives in the generating unit assembly area at Sarcelle powerhouse. On the right is the rotor.

3



4

Distributor's electricity procurement process is governed by the *Code of Ethics on Conducting Calls for Tenders*, which was approved by the Board of Directors and the Régie de l'énergie. The code ensures that the tendering process is conducted fairly for all electricity suppliers. The Régie follows up annually on its application. Moreover, the Régie de l'énergie approved the *Code de conduite du Distributeur* (Distributor Code of Conduct) in March 2006. This code applies to transactions between the Distributor and the Generator for procurement not subject to the tendering process. It also governs dealings between the Distributor and its affiliates, with the aim of preventing affiliates' business operations from being financed, in whole or in part, by electricity service customers. The Distributor provides details on the application of the code in its annual report to the Régie. The *Code of Ethics on Conducting Calls for Tenders* and the *Code de conduite du Distributeur* (in French only) are available for consultation on the company's Web site.

Hydro-Québec TransÉnergie is subject to the *Transmission Provider Code of Conduct* approved by the Régie in 2004. This code governs relations between the Transmission Provider and its affiliates, and its purpose is to prevent any form of preferential treatment or cross-subsidization. The information that must be made public pursuant to the *Transmission Provider Code of Conduct* is published online at OATI webOASIS℠ (**www.oatioasis.com/hqt/**). The Transmission Provider reports on the application of the *Transmission Provider Code of Conduct* in its annual report to the Régie. The *Reliability Coordinator Code of Conduct*, which was approved by the Régie de l'énergie in December 2007 after Hydro-Québec TransÉnergie's Direction – Contrôle des mouvements d'énergie – the unit responsible for system control—was designated as Reliability Coordinator for Québec, came into force in January 2008 and was amended in September 2011. The purpose of this code is to ensure that the reliability of the transmission system remains a top priority and to prevent any form of preferential treatment in favor of other branches of the Transmission Provider, its affiliates or other system users. The Transmission Provider reports on the application of the *Reliability Coordinator Code of Conduct* in its annual report to the Régie.

## DIRECTORS' COMPENSATION AND BENEFITS IN 2011

| | Base compensation[a,b] | Meeting fees[b] | Benefits[c] |
|---|---|---|---|
| **Michael L. Turcotte**[d] | $125,000 | – | $60 |
| **Thierry Vandal**[e] | – | – | – |
| **Robert Sauvé**[e] | – | – | – |
| **Gaston Blackburn** | $12,714 | $14,093 | $3,857 |
| **Anik Brochu** | $17,156 | $13,287 | – |
| **Carl Cassista** | $17,156 | $12,878 | $4,832 |
| **Michelle Cormier** | $17,156 | $8,451 | – |
| **Bernard Gaudreault** | $16,362 | $10,857 | $3,669 |
| **Suzanne Gouin** | $17,156 | $15,296 | $63 |
| **Isabelle Hudon**[f] | – | – | – |
| **Louis Lagassé** | $22,517 | $11,669 | $3,857 |
| **Jacques Leblanc** | $22,517 | $18,893 | $3,857 |
| **Michel Plessis-Bélair** | $22,517 | $12,084 | $63 |
| **Marie-France Poulin** | $22,517 | $15,290 | |
| **Martine Rioux**[f] | – | – | – |
| **Marie-Anne Tawil** | $17,156 | $14,881 | $4,832 |
| **Emmanuel Triassi** | $17,156 | $16,493 | $3,857 |
| **Gilles Vaillancourt**[g] | – | – | – |

a) Pursuant to Orders-in-Council Nos. 1099-2005 and 610-2006.

b) Includes indexing from April 1, 2011.

c) Insurance premiums paid by Hydro-Québec.

d) Michael Turcotte also receives a car allowance of $15,885.

e) Thierry Vandal, President and Chief Executive Officer, and Robert Sauvé, Deputy Minister of Natural Resources and Wildlife, may not receive compensation as members of Hydro-Québec's Board of Directors.

f) Isabelle Hudon and Martine Rioux, who were appointed to the Board of Directors effective November 30, 2011, did not receive any compensation in 2011. They will be compensated retroactively in 2012 for their participation in Board activities that took place in 2011.

g) Gilles Vaillancourt did not receive any compensation in 2011 due to his temporary withdrawal from the Board, from November 26, 2010, until the end of his mandate on November 30, 2011.

## INTERNAL CONTROL SYSTEM

The company's Management maintains an internal control system that meets the demanding requirements of the internationally recognized framework developed by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. This includes communicating Hydro-Québec's rules of ethics and *Code of Conduct* to employees, primarily to ensure the proper management of resources and the orderly conduct of business. The objective of this system is to provide reasonable assurance that financial information is relevant and reliable and that Hydro-Québec's assets are appropriately recorded and safeguarded. The system includes a business risk management process. Internal auditing helps to determine whether the internal control system is sufficient and effective and to assess the company's policies and procedures. It includes a performance audit to ensure the efficiency, effectiveness and cost effectiveness of operations. The Internal Auditor and the independent auditors have full and unrestricted access to the Audit Committee, with or without Management present.

## MONITORING OF AUDITOR INDEPENDENCE

Hydro-Québec has introduced various mechanisms to enable the Audit Committee to ensure that independent auditors remain independent:

- A process whereby any assignment to be given to auditors is analyzed first to prevent any interference with their independence; among other things, certain services may not be provided by the auditors
- Rules requiring prior approval of all requisitions for service sent to the auditors
- Reports to the Audit Committee on the fees billed by the auditors

## AUDITORS' FEES

KPMG LLP, Ernst & Young LLP and the Auditor General of Québec are Hydro-Québec's independent auditors for 2011. Professional fees billed by KPMG LLP and Ernst & Young LLP in 2011 for services other than auditing and certification amounted to 2.2% of the total $5.2 million in fees billed.

## ACCESS TO DOCUMENTS AND PROTECTION OF PERSONAL INFORMATION

Hydro-Québec carefully protects the personal information of its customers, suppliers and employees and respects the public's right of access to information. It takes all the necessary measures to comply with the *Act respecting Access to documents held by public bodies and the Protection of personal information*, or the "Access Act." To facilitate access to information, Hydro-Québec publishes many documents on its Web site at **www.hydroquebec.com/profile**, in accordance with the *Regulation respecting the distribution of information and the protection of personal information*. This site also provides explanations regarding the public's right of access to information and the protection of personal information, including an overview of the procedure for requesting access to a document. Other information available on the site includes the *Hydro-Québec Act*, the company's regulations, codes and policies, and a list of donations and sponsorships that have been awarded.

In addition, Hydro-Québec makes documents and information of public interest available on its Web site (**www.hydroquebec.com**). This includes details concerning construction projects under study and in progress, energy efficiency, sustainable development, transportation electrification and a description of services and programs offered to Hydro-Québec's customers.

Several initiatives were taken in 2011 to increase employee awareness and provide training on the issues involved in protecting personal information. For example, an updated guide on access to documents and protection of personal information was produced, accompanied by a large-scale awareness campaign at the time of its release.

Furthermore, pursuant to the *Action Plan for People with Disabilities 2011*, Hydro-Québec has committed itself to taking all reasonable measures to ensure that people with disabilities can exercise their right to obtain complete, high-quality information.

In 2011, Hydro-Québec received 297 requests for access to information under the Access Act. Most applicants wanted to obtain documents such as studies, reports and contracts, or documents containing personal information about them. All the requests were processed within the prescribed time limit; 225 were granted in full or in part and 46 were refused. Request denials were due mainly to security issues, to opposition by a third party to the disclosure of information belonging to it, or to the commercial or strategic nature of the documents requested. As for the remaining 26 requests, either Hydro-Québec was unable to fulfill them, for instance because it did not have the documents, or the request was withdrawn. Only nine files were the subject of requests for review by the Commission d'accès à l'information du Québec.

## ETHICS

Hydro-Québec attaches great importance to ethics in all aspects of its activities. The concept of ethics has been included in official company guidelines since 1988, with the aim of setting high standards of judgment and behavior in professional activities.

As a government-owned utility, Hydro-Québec must demonstrate exemplary probity, and it can do so only with the consistent support of its employees. Loyalty, integrity, respect, discretion and fairness are fundamental values reflecting Hydro-Québec's social commitment to its customers and the community. Ethical standards and rules resulting from these values are set out in the *Code of Ethics and Rules of Professional Conduct for Directors, Executives and Controllers of Hydro-Québec* (see page 110) and in the *Code of Conduct* for employees. This document, which is available at **www.hydroquebec.com/profile**, has a twofold purpose: facilitate an understanding of the ethical principles set out in the policy Our Management and approved by the Board of Directors, and help all employees perform their duties in keeping with Hydro-Québec's values.

## COMPENSATION AND OTHER BENEFITS PAID TO THE COMPANY'S FIVE MOST HIGHLY COMPENSATED OFFICERS IN 2011

| | Base compensation | Variable compensation[a] | Perquisites used[b] | Automobile | | Life insurance and health insurance premiums paid by Hydro-Québec |
|---|---|---|---|---|---|---|
| | | | | Description of benefit | Cost-in-use | |
| **Thierry Vandal**<br>President and Chief Executive Officer, Hydro-Québec | $476,296 | $85,257 | $7,475 | Executive vehicle | $6,166 | $9,704 |
| **André Boulanger**<br>President, Hydro-Québec TransÉnergie | $373,757 | $74,751 | $5,000 | Car allowance or vehicle, plus parking | $17,071 | $9,065 |
| **Richard Cacchione**<br>President, Hydro-Québec Production | $371,647 | $74,329 | $5,000 | | $17,481 | $7,377 |
| **Isabelle Courville**<br>President, Hydro-Québec Distribution | $371,475[c] | $74,329 | $5,000 | | $17,073 | $5,250 |
| **Réal Laporte**<br>President, Hydro-Québec Équipement et services partagés<br>President and Chief Executive Officer, Société d'énergie de la Baie James[d] | $359,567 | $71,913 | $1,745 | | $13,629 | $6,496 |

| | Pension Plan and Supplementary Benefits Program |
|---|---|
| | **Basic Hydro-Québec Pension Plan (HQPP)**<br>Usual contribution under the plan<br>Pension calculated on the basis of average salary for the best five years<br>Credit of 2.25% per contribution year<br>Recognition of 66.67% of the maximum bonus as pensionable earnings for purposes of the HQPP<br>**Supplementary Benefits Program**<br>Contribution assumed by Hydro-Québec<br>Additional benefits to offset the tax limits under the HQPP (lifting of ceiling on the permitted maximum amount)<br>Payment of benefits according to the same terms as those applicable under the HQPP<br>*Other provisions applicable to the President and Chief Executive Officer of Hydro-Québec*<br>Pension calculated on the basis of average salary for the best three years (less pension payable under the HQPP)<br>Credit of 3.5% per contribution year (less pension credit under the HQPP)<br>Recognition of two years for each year of participation<br>Recognition of 100% of the maximum bonus as pensionable earnings (less portion of bonus recognized under the HQPP)<br>Pension limited to 70% of the average of base salary and variable compensation for the best three years |

a) In accordance with the provisions of the *Act to implement certain provisions of the Budget Speech of 30 March 2010, reduce the debt and return to a balanced budget in 2013–2014* (Bill 100).

b) Health assessment, financial and succession planning, sports clubs and professional dues.

c) Isabelle Courville received a salary increase of 3.5% when she was appointed President of Hydro-Québec Distribution on March 1, 2011.

d) Réal Laporte does not receive any separate compensation as President and Chief Executive Officer, Société d'énergie de la Baie James.

## COMPENSATION AND OTHER BENEFITS PAID TO THE ONLY OFFICER COMPENSATED BY ONE OF THE COMPANY'S WHOLLY OWNED SUBSIDIARIES IN 2011

| | Base compensation | Variable compensation[a] | Perquisites used[b] | Employee benefits |
|---|---|---|---|---|
| **Michel A. Tremblay**<br>General Manager, Cedar Rapids Transmission Company, Limited | $117,364 | $15,811 | $2,000 | Hydro-Québec pension plan and group insurance plans |

a) In accordance with the provisions of the *Act to implement certain provisions of the Budget Speech of 30 March 2010, reduce the debt and return to a balanced budget in 2013–2014* (Bill 100).

b) Financial and succession planning and sports clubs.

Hydro-Québec managers at all reporting levels play a key role in applying the company's ethical principles. They see to it that the *Code of Conduct* is applied and observed, thereby upholding the company's values. The Executive Vice President – Corporate Affairs and Secretary General, who is responsible for interpreting the *Code of Conduct*, may issue opinions on ethical questions with a view to preventing or rectifying a situation.

### LANGUAGE GUIDELINES

In 2011, Hydro-Québec continued its efforts to maintain the quality of the French used in the company's internal and external communications. Various proficiency courses (grammar, business correspondence and specialized writing) were offered to employees, and four terminology bulletins were published on the intranet. Promotional and awareness activities were organized to highlight Francofête, a celebration of French language and culture. In addition, two style guides were published in 2011: one providing guidelines for business cards and the other describing proper usage for job titles and names of administrative units.

### SUSTAINABLE DEVELOPMENT

The Sustainability Report discusses the company's main sustainable development initiatives, the progress made in this area and the company's sustainable energy choices. The report is based on the Global Reporting Initiative Guidelines. It is published at **www.hydroquebec.com/sustainable-development**, where additional information is provided on the company's performance with regard to sustainable development.

# CODE OF ETHICS AND RULES OF PROFESSIONAL CONDUCT

## FOR DIRECTORS, EXECUTIVES AND CONTROLLERS OF HYDRO-QUÉBEC

### **PART I** – INTERPRETATION AND APPLICATION

1. In this Code, unless the context indicates otherwise:

a) **"director"** means, with respect to the Company, a member of the Board of Directors of the Company, whether or not working full-time within the Company;

b) **"Committee"** or "Ethics and Corporate Governance Committee" means the Ethics and Corporate Governance Committee established by resolution of the Board of October 17, 1997 (HA-173/97), a copy of which is attached in Schedule D. A copy of the Committee's mandate as amended by resolution of the Board of June 13, 2008 (HA-104/2008) is attached in Schedule D;

c) **"spouse"** includes marriage partners and persons living as if married for more than one year;

d) **"Board"** means the Board of Directors of the Company;

e) **"contract"** includes a proposed contract;

f) **"control"** means the direct or indirect ownership of securities, including shares, conferring more than 50% of voting rights or economic interest without this right depending on the occurrence of a particular event or allowing the election of the majority of directors;

g) **"controller"** means the controller of the Company and the controllers of divisions or groups or units reporting to the President and Chief Executive Officer of the Company;

h) **"executive"** with respect to the Company means any contractual manager whose employment conditions are subject to the approval of the Board;

i) **"enterprise"** means any form that can be taken by the organization for the production of goods or services or any other business of a commercial, industrial or financial nature or any group seeking to promote certain values, interests or opinions or to exercise an influence on public officials; however, this does not include the Company or a non-profit association or group that has no financial link with the Company or is not incompatible with the objects of the Company;

j) **"affiliated enterprise"** means a legal person or company in which the Company owns, directly or indirectly, securities, including shares, conferring more than 10% of voting rights or economic interest;

k) **"immediate family"** means spouse and dependent children;

l) **"subsidiary"** means a legal person or company controlled directly or indirectly by the Company;

m) **"Regulation"** means the *Regulation respecting the ethics and professional conduct of public office holders* [Order-in-Council 824-98 of June 17, 1998 (1998) 130 G.O. II, 3474, pursuant to sections 3.01 and 3.02 of the *Act respecting the Ministère du Conseil exécutif*, R.S.Q., c. M-30], as amended from time to time;

n) **"Company"** means Hydro-Québec.

2. In this Code, the prohibition to perform an act also applies to any attempt to perform it and any participation in it or incitement to perform it.

2.1 This Code applies to the directors, the President and Chief Executive Officer, other executives of the Company and its controllers.

The directors and the President and Chief Executive Officer are also subject to the Regulation.

### **PART II** – ETHICAL PRINCIPLES AND GENERAL RULES OF PROFESSIONAL CONDUCT

3. The director, executive or controller is appointed to contribute to the achievement of the Company's mission in the best interest of Québec. Accordingly, he is expected to use his knowledge, abilities and experience in a way that will promote the effective, fair and efficient accomplishment of the objectives assigned to the Company by law and the good administration of the property it owns as mandatary of the State.

His contribution shall be made with respect for the law and with honesty, loyalty, prudence, diligence, efficiency, application and fairness.

3.1 The director, executive or controller respects the following principles in the performance of his duties:

the values underlying the activities of the Company as a government-owned business company, which include customer satisfaction, a "business first" approach, respect for employees, quality improvement, respect for the environment, partnership with local communities and safeguarding the future; and

the principles set out in the basic policies of the Company, expressing commitments and conveying a business culture with regard to customers, human resources, acquisition of assets and services, business partners, finance, assets, the environment, social role, management, security and financial disclosure.

3.2 The director, executive or controller is required, in the performance of his duties, to respect the ethical principles and rules of professional conduct provided by law, the Regulation as applicable, and those defined in this Code. In case of discrepancy, the more stringent rules and principles apply.

When in doubt, act according to the spirit of these principles and rules.

A director, executive or controller who, at the request of the Company, serves as director or member of an undertaking or a company, is held to the same standards.

4. The director, executive or controller shall not merge the assets of the Company with his own; he may not use the assets of the Company or information he obtains as a result of his duties for his own profit or the profit of others. These obligations continue even after the director, executive or controller has ceased to hold his position.

5. The director, executive or controller shall seek, in the performance of his duties, only the interest of the Company to the exclusion of his own interest or that of others.

5.1 The director, executive or controller is bound to discretion in regard to anything that comes to his knowledge in or during the performance of his duties and is at all times bound to maintain the confidentiality of such information.

5.2 In the performance of his duties, the director, executive or controller shall make decisions without regard for any partisan political considerations.

The Chairman of the Board, the director working full-time within the Company, the executive and the controller shall demonstrate reserve in the public expression of their political opinions.

6. The director, executive or controller may not directly or indirectly grant, solicit or accept a favor or an undue advantage for himself or for a third party.

In particular, he may not accept or solicit an advantage from a person or undertaking doing business with the Company or a subsidiary or acting in the name of or on behalf of such a person or undertaking if this advantage is intended or likely to influence him in the performance of his duties or generate expectations of this nature.

6.1 The director, executive or controller shall, in making decisions, avoid allowing himself to be influenced by offers of employment.

6.2 The director, executive or controller may not accept any gift or hospitality except what is customary and modest in value.

Any other gift or hospitality shall be returned to the giver.

7. The director may not make a commitment to a third party or grant them any guarantee relative to a vote he may be asked to make or any decision whatsoever that the Board may be asked to make.

7.1 The director, executive or controller may not, in the performance of his duties, deal with a person who has ceased to be a director, executive or controller of the Company for less than one year if this person is acting on behalf of a third party with respect to a proceeding, negotiation or other transaction to which the Company is a party and about which he has information not available to the public.

7.2 After ceasing his duties, no director, executive or controller may disclose confidential information he has obtained or give anyone advice based on information not available to the public concerning the Company or any other undertaking or company with which he had direct and substantial dealings during the year preceding the date on which he ceased his duties.

In the year following that date, he may not act on behalf or on account of another party with respect to a procedure, negotiation or other transaction to which the Company is a party and about which he has information not available to the public.

8. The director, executive or controller shall collaborate with the Chairman of the Board or the Ethics and Corporate Governance Committee on an issue of ethics or professional conduct when asked to do so.

8.1 The director, executive or controller who intends to be a candidate for elective office shall inform the Chairman of the Board of this intention.

The Chairman of the Board or President and Chief Executive Officer with the same intention shall inform the Secretary General of the Conseil exécutif.

## PART III – DUTIES AND OBLIGATIONS OF DIRECTORS, EXECUTIVES AND CONTROLLERS WITH RESPECT TO CONFLICTS OF INTEREST

### PREVENTION OF CONFLICTS OF INTEREST

9. The director, executive or controller shall avoid placing himself in a situation in which his personal interest is in conflict with the duties of his position or in which reasonable doubt is cast on his ability to perform these duties with undivided loyalty.

In the event that this Code does not include provisions for a certain situation, the director, executive or controller must determine whether his conduct is in accordance with how the Company could reasonably expect a director, executive or controller to conduct himself in such circumstances. He must also determine whether a reasonably well-informed person would conclude that the situation might influence his decisions and impair his objectivity and impartiality in the performance of his duties for the Company.

10. A director who is employed full-time within the Company or one of its subsidiaries shall also avoid performing duties or being bound by commitments that prevent him from devoting the time and attention that the normal exercise of his duties requires.

As for other directors, they shall be sure to devote the time and attention reasonably required in the circumstances for the execution of their duties.

10.1 No director holding a full-time office with the Company, under pain of forfeiture of office, may have any direct or indirect interest in an undertaking, company or association that puts his personal interest in conflict with that of the Company.

However, such forfeiture is not incurred if that interest devolves to him by succession or gift, provided that he renounces or disposes of it with all possible dispatch. Meanwhile, sections 12, 13, 15 and 18 apply to this director.

Every other director who has an interest in an undertaking shall, on pain of forfeiture of his office, comply with the provisions of sections 12, 13, 15 and 18.

11. A director, executive or controller of the Company who serves as director, executive or controller of an affiliated enterprise shall be specifically authorized by the Board to:

a) hold shares, rights or any other security issued by such enterprise and conferring voting rights or economic interest in it or the right to subscribe or buy such shares, rights or securities;

b) benefit from any profit-sharing program, unless this director, executive or controller works full time for the enterprise and the profit-sharing program is closely linked with the individual performance of the director, executive or controller within the affiliated enterprise;

c) benefit from a pension plan granted by the affiliated enterprise if he does not hold a full-time position within the enterprise; or

d) benefit from any advantage granted in advance in the case of a change of control of the affiliated enterprise.

12. A director, executive or controller who:

a) is party to a contract with the Company or a subsidiary; or

b) has a direct or indirect interest in an enterprise that is a party to a contract with the Company or a subsidiary or is a director, executive, controller or employee of this enterprise, except, in the latter case, if it is an enterprise that belongs to the same group as the Company;

shall disclose the nature and extent of his interest in writing to the Chairman of the Board.

The same applies to a director who has a direct or indirect interest in any issue being considered by the Board of Directors.

The director shall at all times abstain from conveying any information of any kind to any employee, controller, executive or director of the Company with respect to this contract or interest.

The director shall abstain from deliberating or voting on any question linked to this interest and avoid trying to influence the related decision. The director shall also withdraw from the meeting for the duration of deliberations and voting on this question. These restrictions do not apply when the decision concerns an enterprise belonging to the same group as the Company.

12.1 A director who is a member of the Audit Committee of the Board of Directors may not have an interest in the Company or a subsidiary. In particular, he may not accept from the Company or a subsidiary fees with respect to consulting, consulting services or any other similar service.

13. The disclosure required by section 12 occurs, in the case of a director, during the first meeting:

a) in the course of which the contract or question concerned is under study;

b) following the time at which the director who had had no interest in the contract or question concerned acquires such interest;

c) following the time at which the director acquires an interest in the already concluded contract; or

d) following the time at which any person with an interest in a contract or a question under study becomes a director.

14. An executive or controller who is not a director shall make the disclosure required in section 12 immediately after:

a) having learned that the contract or question concerned was or will be studied at a meeting;

b) having acquired the interest, if it is acquired after the contract was concluded or the decision made; or

c) having become an executive or controller, if he becomes one after acquiring the interest.

The executive or controller may not try to influence the directors' decision in any way.

15. The director, executive or controller shall make the disclosure required in section 12 as soon as he has knowledge of a contract contemplated by this section which, as part of the normal business of the Company, does not require the approval of the directors.

16. Sections 12 to 15 apply also when the interest concerned is held by a member of the immediate family of the director, executive or controller.

17. The director, executive or controller shall notify the Chairman of the Board in writing of the rights he may invoke against the Company, by indicating their nature and their value, as soon as these rights come into existence or when he acquires knowledge of them.

18. The director, executive or controller shall submit to the Chairman of the Board, within 60 days of being appointed and on January 31 of each year in which he remains in office, an attestation in the form provided in Schedule B and containing the following information:

a) the name of any enterprise (including its area of activity and place of operations), in which he owns directly or indirectly securities or assets, including common shares, when the holding of securities is greater than 5% of the total issued capital and shares outstanding, specifying the nature and proportion of securities owned and value of assets;

b) the name of any enterprise for which he performs functions or in which he has an interest in the form of a debt, right, priority, mortgage or significant commercial or financial benefit; and

c) any other fact, situation or event of which he has knowledge and that could put him in a conflict of interest situation or be perceived as such.

A director, executive or controller to whom the provisions of paragraphs a) to c) do not apply shall fill out an attestation to that effect and present it to the Chairman of the Board.

The director, executive or controller shall also produce such an attestation within 60 days of the occurrence of a significant change in its content.

The attestations presented pursuant to this section are treated as confidential.

19. The Chairman of the Board submits the attestations received pursuant to sections 12 to 18 to the Secretary of the Company, who keeps them at the disposal of the members of the Board and the Ethics and Corporate Governance Committee.

Moreover, the Secretary of the Company notifies the Chairman of the Board and the Ethics and Corporate Governance Committee of any failure to satisfy the obligations provided for in sections 12 to 18 as soon as the Secretary becomes aware of them.

### WAIVERS

20. This Code does not apply:

a) to owning securities representing 5% or less of the total issued capital and shares outstanding;

b) to owning an interest by way of a mutual fund in whose management the director, executive or controller plays no role directly or indirectly;

c) to owning interests through a blind trust whose beneficiary cannot know its makeup;

d) to owning a minimum number of shares required to be eligible as director of a corporation;

e) to an interest which, by its nature and extent, is common to the public at large or a particular sector in which the director, executive or controller operates;

f) to a directors' liability insurance agreement; or

g) to the owning of shares issued or guaranteed by the Company, a government or municipality under the same conditions for everyone.

### ATTESTATION

20.1 Within sixty days of the adoption of this Code by the Board, each director, executive or controller shall submit to the Chairman of the Board and the Secretary of the Company the attestation appearing in Schedule C.

Each new director, executive or controller shall do the same within sixty days of his appointment to this position.

## PART IV – REMUNERATION

20.2 The director, executive or controller, for the exercise of his duties, is entitled solely to the remuneration related to those duties. Such remuneration may not include, even partially, monetary advantages such as those established, in particular, by a profit sharing plan based on the variation in the value of shares or on a stake in the capital stock of the Company.

20.3 A director, executive or controller dismissed for just and sufficient cause may not receive a severance allowance or payment.

20.4 A director, executive or controller who quits his duties, who has received or is receiving a severance allowance or payment and who holds an office, employment or any other remunerated position in the public sector during the period corresponding to that allowance or payment shall refund the part of the allowance or payment covering the period for which he receives a salary or shall cease to receive it during that period.

However, if the salary he receives is lower than that he received previously, he shall be required to refund the allowance or payment only up to the amount of his new salary, or he may continue to receive the part of the allowance or payment that exceeds his new salary.

20.5 Anyone who has received or is receiving a severance allowance or payment from the public sector and receives a salary as director, executive or controller during the period corresponding to that allowance or payment shall refund the part of the allowance or payment covering the period for which he receives a salary or shall cease to receive it during that period.

However, if the salary he receives as director, executive or controller is lower than that he was receiving previously, he shall be required to refund the allowance or payment only up to the amount of his new salary, or he may continue to receive the part of the allowance or payment that exceeds his new salary.

20.6 A President and Chief Executive Officer who has ceased to perform his duties, who has received so-called assisted departure measures and who, within two years after his departure, accepts an office, employment or any other remunerated position in the public sector shall refund the sum corresponding to the value of the measures received by him, up to the amount of the remuneration received, by the fact of his return to the public sector, during that two-year period.

20.7 Part-time teaching by a director, executive or controller is not covered by sections 20.4 to 20.6.

20.8 For the application of sections 20.4 to 20.6, "public sector" means the bodies, institutions and companies referred to in the Regulation in Schedule A.

The period covered by the severance allowance or payment referred to in sectiions 20.4 and 20.5 shall correspond to the period that would have been covered by the same amount if the person had received it as salary in his prior office, employment or position.

## PART V – APPLICATION OF THE CODE

### COMPETENT AUTHORITIES

20.9 The Associate Secretary General for Senior Positions of the Ministère du Conseil exécutif is the competent authority for the application of this Code with respect to the Chairman of the Board and the other directors of the Company appointed by the Government.

The Chairman of the Board is the competent authority with respect to all directors of wholly owned subsidiaries, executives or controllers of the Company.

The Chairman of the Board shall ensure observance of the ethical principles and rules of professional conduct by the directors, executives and controllers of the Company.

21. The Ethics and Corporate Governance Committee has as its mission to advise the competent authority with respect to ethics and professional conduct.

The Committee also performs the duties invested in it by the resolution appearing in Schedule D and performs any other duties related to ethics entrusted to it by the Board.

In the performance of its duties, the Ethics and Corporate Governance Committee may become acquainted with the attestations contemplated by section 19.

22. When a director, executive or controller is accused of a violation of ethics or the rules of professional conduct, the Committee is responsible for collecting all relevant information. It makes a report of its findings to the competent authority and recommends appropriate measures, if any.

The competent authority notifies the director, executive or controller of the alleged violations and the possible penalties. It informs him that he has seven days in which to respond and if he requests, to be heard on this matter.

23. The Committee may render advisory opinions to directors, executives or controllers on the provisions of this Code and their application to specific cases, even hypothetical ones. It is not required to limit its views to the terms contained in the request.

23.1 In order to allow an appropriate decision to be made in the case of an urgent situation requiring fast response or in an alleged case of serious misconduct, the competent authority may temporarily relieve of his duties, with remuneration, the director, executive or controller who is accused of violations of ethics or the rules of professional conduct.

24. The Secretary of the Company keeps records in which are stored the statements, disclosures and attestations that must be submitted to it under this Code, the reports and advisory opinions of the Committee and the decisions of the competent authority with respect to ethics and professional conduct.

The Secretary shall also take the necessary steps to ensure the confidentiality of the information provided by the directors, executives and controllers pursuant to this Code.

25. The Committee may consult and receive opinions from outside counsel or experts on any issue it considers appropriate.

26. A director, executive or controller does not violate the provisions of this Code if he has obtained in advance a favorable decision from the Committee on the following conditions:

a) the decision was obtained before the facts on which it was based became a reality;

b) the decision was submitted to the Board;

c) all of the relevant facts were fully disclosed to the Committee exactly and completely; and

d) the director, executive or controller has complied with all the requirements of the decision.

27. The Committee and the competent authority preserve the anonymity of complainants, applicants and informers unless there is a clear intention to do otherwise. They may not be forced to reveal information likely to disclose their identity except if the law or a court so requires.

### PENALTIES

28. Upon concluding that a provision of the law, the Regulation or this Code has been violated, the competent authority may impose either of the following penalties:

a) for an executive or a controller, the appropriate penalty, which can extend as far as termination of employment; and

b) for a director, reprimand, suspension without remuneration for a maximum of three months, or removal from the Board.

However, when the competent authority is the Associate Secretary General contemplated by section 20.9, the penalty is imposed by the Secretary General of the Conseil exécutif. If the penalty proposed consists of the removal of a public office holder appointed or designated by the Government, it can only be imposed by the latter; in this case, the Secretary General of the Conseil exécutif may immediately suspend the public office holder without remuneration for a period not exceeding 30 days.

Any penalty imposed on a director and the decision to temporarily relieve him of his duties must be in writing and give the reasons therefor.

29. In the case of a violation of section 10, the competent authority records in writing the forfeiture of office of the violator.

30. The director, executive or controller shall render an account and restore to the Company any profits earned or benefits received as a result of or on the occasion of a violation of the provisions of this Code.

31. A director's vote shall not be a casting vote if it is made in violation of the provisions of this Code or associated with such a violation, or if the director fails to produce the attestation contemplated by section 18.

# GENERATING, TRANSMISSION AND DISTRIBUTION FACILITIES

## **Generation** Installed capacity in MW

### Hydroelectric generating stations
35,285 MW

| | |
|---|---|
| Robert-Bourassa | 5,616 |
| La Grande-4 | 2,779 |
| La Grande-3 | 2,417 |
| La Grande-2-A | 2,106 |
| Beauharnois | 1,906 |
| Manic-5 | 1,596 |
| La Grande-1 | 1,436 |
| René-Lévesque (Manic-3) | 1,244 |
| Bersimis-1 | 1,178 |
| Jean-Lesage (Manic-2) | 1,145 |
| Manic-5-PA | 1,064 |
| Outardes-3 | 1,026 |
| Sainte-Marguerite-3 | 882 |
| Laforge-1 | 878 |
| Bersimis-2 | 869 |
| Eastmain-1-A | 829 |
| Outardes-4 | 785 |
| Carillon | 753 |
| Toulnustouc | 526 |
| Outardes-2 | 523 |
| Eastmain-1 | 507 |
| Brisay | 469 |
| Péribonka | 405 |
| Laforge-2 | 319 |
| Trenche | 302 |
| La Tuque | 294 |
| Beaumont | 270 |
| McCormick | 235 |
| Rocher-de-Grand-Mère | 230 |
| Paugan | 213 |
| Rapide-Blanc | 204 |
| Shawinigan-2 | 200 |
| Shawinigan-3 | 194 |
| Manic-1 | 184 |
| Rapides-des-Îles | 176 |
| Chelsea | 152 |
| La Gabelle | 131 |
| Première-Chute | 131 |
| Rapides-Farmer | 104 |
| Les Cèdres | 103 |
| Rapides-des-Quinze | 103 |
| Other (19 generating stations rated less than 100 MW) | 801 |

### Nuclear
675 MW

| | |
|---|---|
| Gentilly-2 | 675 |

### Thermal
1,011 MW

| | |
|---|---|
| Bécancour, La Citière and Cadillac (gas turbine) | 881 |
| Other (24 diesel plants) | 130 |

### Hydroelectric generating stations planned or under construction
1,700 MW

| | |
|---|---|
| Sarcelle | 150 |
| Romaine (4 generating stations) | 1,550 |

### Installed capacity of Hydro-Québec's generating fleet
36,971 MW

| | |
|---|---|
| Hydroelectric (60)[a] | **35,285** |
| Nuclear (1)[b] | **675** |
| Thermal (27)[c] | **1,011** |

a) 59 operated by Hydro-Québec Production and 1 by Hydro-Québec Distribution.

b) Operated by Hydro-Québec Production.

c) 3 operated by Hydro-Québec Production and 24 by Hydro-Québec Distribution.

### Other sources of supply
7,585 MW

| | |
|---|---|
| Churchill Falls generating station [Churchill Falls (Labrador) Corporation Limited][a] | **5,428** |
| 12 wind farms operated by independent power producers[b] | **919** |
| 3 small hydropower plants operated by independent power producers[b] | **23** |
| Agreements with other suppliers[c] | **1,215** |

a) Hydro-Québec has access to almost all the output until 2041.

b) Hydro-Québec purchases all the output.

c) Hydro-Québec has access to the output of these suppliers.

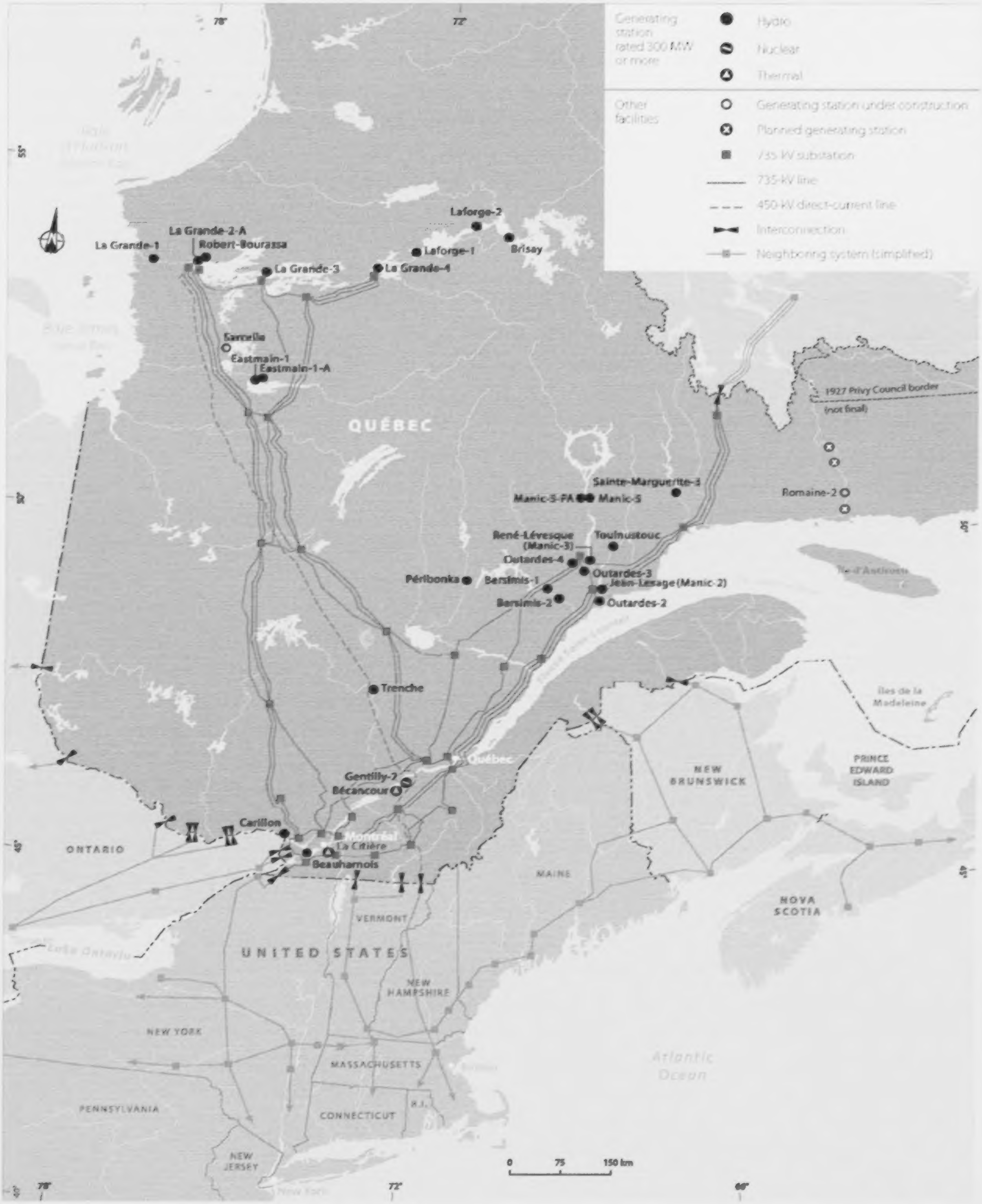
## Transmission

| Voltage | Lines (km) | Substations (number) |
|---|---|---|
| 765 and 735 kV | 11,422 | 38 |
| 450 kV DC | 1,218 | 2 |
| 315 kV | 5,255 | 65 |
| 230 kV | 3,223 | 51 |
| 161 kV | 2,122 | 44 |
| 120 kV | 6,761 | 217 |
| 69 kV or less | 3,629 | 97 |
| **Total** | **33,630** | **514** |

## Distribution

| Voltage | Lines (km) |
|---|---|
| 34 kV | 729 |
| 25 kV | 107,512 |
| 12 kV | 4,956 |
| 4 kV or less | 328 |
| **Total** | **113,525** |

# MAJOR FACILITIES



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# UNITS OF MEASURE

| | |
|---|---|
| **¢/kWh** | cents ($0.01) per kilowatthour |
| **$M** | millions of dollars |
| **$B** | billions of dollars |
| **V** | volt (a unit for measuring voltage) |
| **kV** | kilovolt (one thousand volts) |
| **W** | watt (a unit for measuring power) |
| **kW** | kilowatt (one thousand watts) |
| **MW** | megawatt (one million watts) |
| **GW** | gigawatt (one million kilowatts) |
| **Wh** | watthour (a unit for measuring electric energy) |
| **kWh** | kilowatthour (one thousand watthours) |
| **MWh** | megawatthour (one million watthours) |
| **GWh** | gigawatthour (one million kilowatthours) |
| **TWh** | terawatthour (one billion kilowatthours) |
| **km** | kilometre |
| **MBtu** | million Btu (British thermal units) |
| **t** | tonne (metric ton) |
| **t $CO_2$ eq.** | tonnes of $CO_2$ equivalent |

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